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ABSTRACT

The attitudes and career plans of high school juniors and seniors were examined in a telephone survey of 809 U.S. high school juniors and seniors (sampling error, +/-3.5%). The respondents ranged in age from 14 to 20 years and were evenly divided between males and females. The key conclusions were as follows: (1) students perceive a lack of career guidance; (2) bias toward four-year colleges is pervasive; and (3) career choice is based on personal interest over career opportunity. The following were among the researchers' even recommendations for improving career guidance systems: (1) fund and empower K-12 career counselors; (2) increase partnerships between educators and industry; (3) realign career recruitment/image campaigns; and (4) promote the career pathways concept. (Thirty tables/figures and survey overview and demographic analysis are included. The following items are appended: "Practice and Research in Career Counseling and Development--2000" (Darrell Anthony Luzzo, Marilyn Wright MacGregor); "Perceived Influences on High School Students' Current Career Expectations" (Heidi K. Paa, Ellen Hawley McWhirter); a profile of the Get Tech campaign of the National Association of Manufacturers' Center for Workforce Success; "Training with a Purpose" (David C. Sansone); "Schools and Industry--A Winning Combination" (David C. Sansone); and "Final Report and Recommendations" (Ferris State University Partnership for Career Decision-Making in Technologies and Health Sciences)). (MN)

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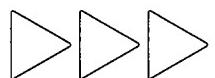
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Career Guidance and Decision-Making Among American Youth

A study conducted for Ferris State University's
Career Institute for Education and Workforce Development,
in partnership with the National Association of Manufacturers,
the Precision Metalforming Association Educational Foundation and
the Associated Equipment Distributors Foundation

May 2002

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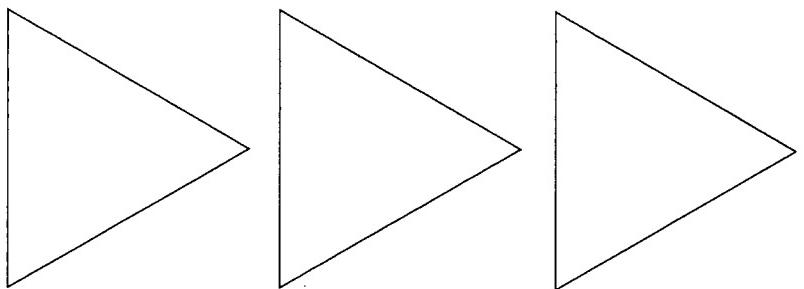
Complete findings and overview of the survey instrument and data

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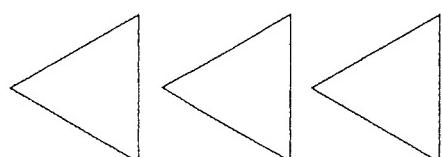
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Decisions Without Direction: Career Guidance and Decision-Making Among American Youth

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Career Institute for Education
and Workforce Development

Dan Hurley and Jim Thorp, editors,
with data collection and assistance
from EPIC-MRA, Lansing, MI



Executive Summary

 **Overview: Toward Better Career Prep**
Without question, young people face many of life's most important decisions in those transition years between high school and the working world. Unfortunately, too many students are unaware of their education and employment options. The path they follow to their careers is indirect, and their decisions are often based on scant information.

The nation's career guidance system is falling short. Business interests call for more properly trained workers, at the same time questioning the value of a traditional four-year college education in providing that training. Research shows a stark disconnect between the courses of study students pursue and existing career openings and business needs. Educators have seen relatively low interest in technology programs despite continuing demand for technologically adept graduates and high income potential for those who choose high-tech careers.

Finally, research shows only a fraction of students who pursue higher education nationwide graduate. Career goals play a critical role in student success by helping students focus their interests. To determine what factors influence young people's choice of careers and career paths, the Ferris State University Career Institute for Education and Workforce Development has teamed with the National Association of Manufacturers, the Precision Metalforming Association Educational Foundation and the Associated Equipment Distributors Foundation to complete a study of the attitudes and career plans of the nation's high-school juniors and seniors.

The results of this study yield a number of interesting conclusions and suggest new ways of approaching career education in the K-12 system and beyond—methods to improve the ability of students to choose careers and career paths and to provide business and industry with skilled and satisfied employees.

This report on the attitudes, career plans and factors that influence the career decision-making process among American youth provides a range of interesting and useful data. A more detailed review of the study's findings follows this executive summary. Presented below are three broad conclusions drawn from study's findings, along with supporting data from the national survey of high-school juniors and seniors. It is our hope that this report will add to the growing body of research aimed at enabling our youth to make more informed career decisions.

Key Conclusions

On Their Own

Students perceive a lack of career guidance in their schools, and often cannot name anyone outside of their parents who have been helpful in career counseling. Furthermore, most admit that parental guidance has been limited to a few hours in the past few months.

The Narrow Path

The bias toward pursuing a degree from a four-year college is pervasive. More than two-thirds of American young people plan to pursue a four-year college education, despite the fact that far fewer will succeed in this endeavor and that fields requiring only technical training are in need of employees.

Just a Feeling

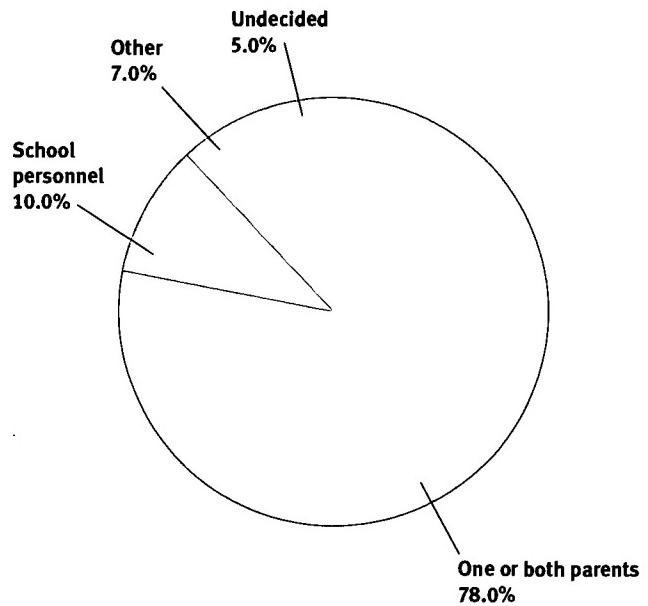
Students' career choices are most often based on personal interest over career opportunity. Very few students pick career fields based on job availability or salary—instead, they pursue what they enjoy.

Conclusion 1:

Students Perceive Lack of Career Guidance

The most striking finding of the study? Most young people are receiving little to no career guidance outside the home, and not enough from their parents. Just 10 percent said school personnel had played the primary role in their career guidance—the vast majority (78 percent) credited their parents as the top adult influence.

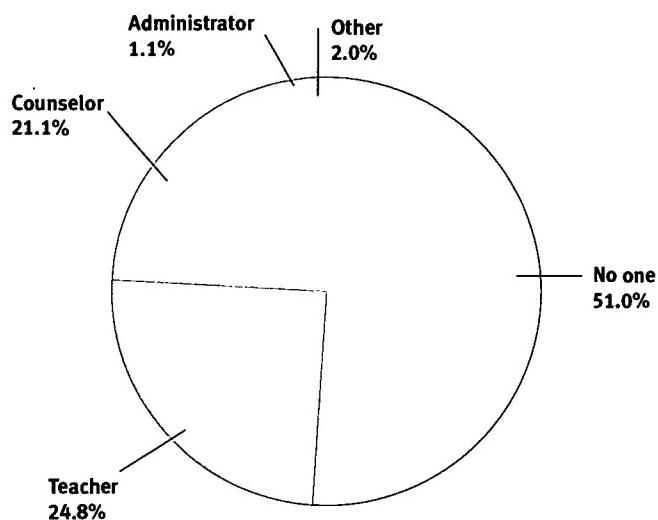
Who is primarily responsible for helping plan for a career or job? (n=809)



That parents are the primary adult influence on career decisions may not be so surprising. More alarming, perhaps, is the number of students

who don't perceive any real career guidance occurring in high school—more than half fall into this category.

Who in high school has been helpful in advising on career options or options to further your education? (n=809)

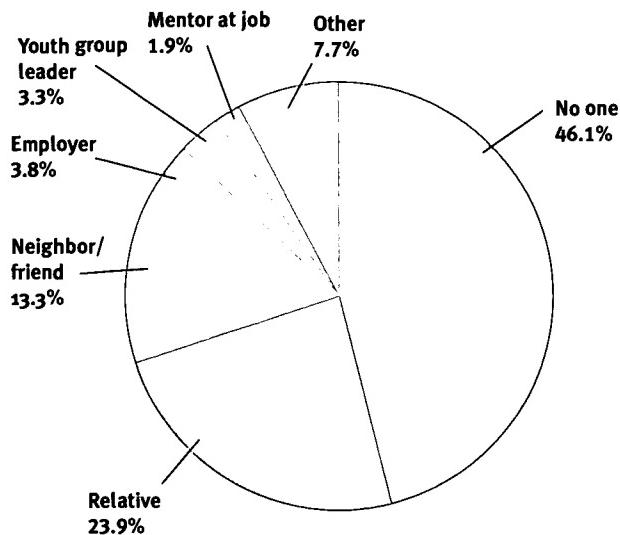


Source: Ferris State University

Among school employees, teachers edge out counselors as the most likely adult career influence. It also should be noted that 20 percent of the students surveyed could think of nothing their high school was doing to help with career decision-making.

Similar to the results illustrated in the chart above, a high percentage of students (46 percent) could identify no one outside of their parents or schools who had played a significant role in career counseling.

Who not associated with your school has been helpful in advising you on career options or options to further your education? (n=809)



Source: Ferris State University

To make matters worse, even though most young people view their parents as their biggest adult influence when it comes to careers, *more than two-thirds (70 percent) claimed to have spent three hours or less in the past few months discussing careers with their parents.*

That's not much guidance on which to base a life decision—and most parents have a fairly narrow frame of reference when it comes to jobs and job training. This lack of career guidance leads to high-school graduates who are either undecided as to what career to pursue, or who may make a poorly informed decision that they may regret or abandon altogether. As a result,

- success in the workplace or in post-secondary education is less likely
- workers' skills and aspirations are not aligned with employers' needs
- both of these factors lead to a diminishing pool of qualified workers.

Even so, 72 percent of those surveyed say they've picked a career to pursue. This trend cuts across all groups, but in a few cases there are notable differences. For example, Hispanic young people are much less likely than others to have made a career decision—less than three out of five (57 percent) say they have. Similarly, young people in the West are less likely than others to have made a decision, a finding that also may be related to ethnicity since Hispanics are more heavily represented in the West (and South, where the effect is also noticeable).

Two additional conclusions from the study further complicate the career-guidance picture. Recommendations for addressing these issues follow a more complete discussion of these additional findings.

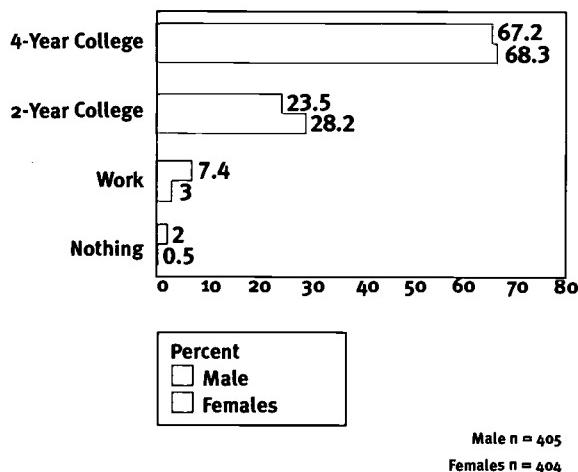
Conclusion 2:

Four-Year College Bias is Pervasive

Ask young people what they plan to do after graduation, and nearly all of them will tell you some sort of post-secondary education figures into their thinking. More than two-thirds (68 percent) say they are headed to a four-year college or university, with 26 percent planning to attend a community college or technical trade school.

Only a handful—6 percent—plan no further schooling. And although men are more likely than women to choose to go straight to work after high school, the percentages of university-bound men and women are nearly identical.

**Which of the following comes closest to describing what you expect to do after graduation from high school?
By gender (n=809)**



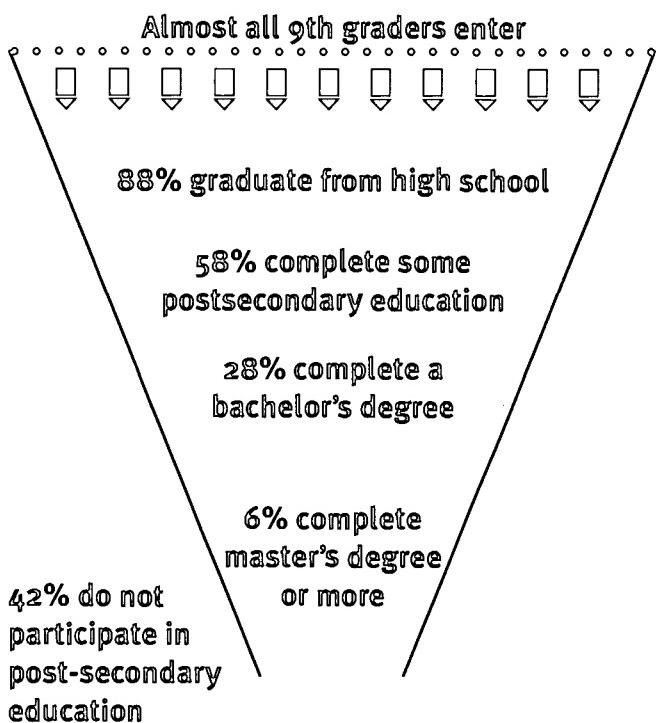
Source: Ferris State University

As with gender, so with race/ethnicity. The general trend is toward post-secondary education for the great majority, and this holds for all racial and ethnic groups. Still, some differences can be observed. Hispanics, for example, are much less likely to favor a four-year post-secondary school than whites or blacks, and much more likely to favor a two-year school. The data also suggest, though not conclusively, that there are some marginal differences in post-high-school plans in different regions of the country. The college of choice is more likely to be a four-year school in the Northeast than elsewhere and more likely to be a two-year school in the West than elsewhere. This finding again may be related to ethnicity, since Hispanics are more heavily represented in the West.

This high percentage of young people planning to go to college might sound appealing, but the reality of the situation is less so. In truth, signifi-

cantly fewer high-school graduates enter college, and only a fraction of those emerge with that coveted bachelor's degree.

Too Much Leakage in the Career Training Sieve



Completion rates of 25-29 year-olds

Source: National Center for Education Statistics

The bias toward four-year degrees is so pervasive, however, that many students never explore other options.

- 68 percent of those surveyed said that the best jobs require *at least* a four-year college education.
- 41 percent attribute a sense of embarrassment to voc-ed training programs.
- 45 percent said pursuing technical training might limit their career options.

Improved career counseling for K-12 students would help the situation, but the fact remains that many colleges and universities are poorly

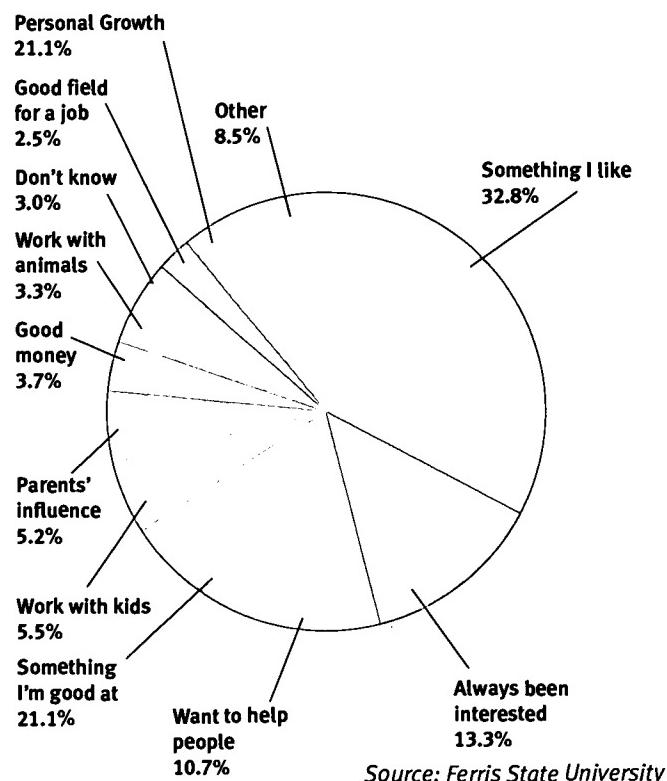
equipped to assist students who are undecided on a career. The bureaucracy and lack of coordination throughout the post-secondary education system creates barriers that restrict students' options and impede their educational progress. The impact of these obstacles can be felt in business and industry—especially in career fields requiring less than a four-year degree.

Notice that only 2.5 percent cited job availability ("Good field for a job") as the main reason they chose a particular career. The disconnect between the availability of jobs and the careers that young people choose is illustrated most clearly in computer-intensive fields—47.6 percent of students identified computers as one of the areas presenting the greatest career opportunities for young people, but only 6.8 percent plan to pursue a career in this field. The same holds true for many other career fields.

Conclusion 3: Career Choice Based on Interest Over Opportunity

Think young people are only in it for the money? Think again. Asked what were the primary reasons for their career choices, just 3.7 percent indicated "good pay." In fact, the vast majority offered emotionally based, personal reasons, rather than pragmatic considerations.

What is the main reason why you chose your preferred career or job? (n=673)



Perceived opportunity versus interest for top 11 career selections

Career Selection	Percent selecting as their own career field	Percent perceiving field as a great career opportunity
Computers	6.8%	47.6%
Business	4.7%	16.8%
Engineering	3.2%	8.7%
Education, teaching	9.4%	24.3%
Health care and medical	21.0%	51.1%
Military service	3.2%	7.3%
Law	6.8%	14.7%
Science	4.0%	6.9%
Automotive	2.7%	3.4%
Veterinary medicine	3.2%	0.6%
Art	2.7%	0.5%

Source: Ferris State University

Note that in veterinary medicine and art the opposite holds true—students feel little opportunity exists in these areas, but a few choose to pursue them anyway.

Interestingly, job availability and pay are the two issues most commonly addressed when employers try to recruit workers to a particular field, but few students emphasize either of these factors above personal interest. And while 92 percent of students rate salary as at least somewhat important in choosing a career, 94 percent rank free time for family and recreation as at least somewhat important (with 60 percent ranking free time as “very important”).

Careers have not traditionally been marketed this way—it is easier to advertise annual salary and number of job openings than to portray the less tangible aspects of a career, like lifestyle or quality of person-to-person interaction. Not doing so, however, exacerbates the problem of worker shortages in high-demand fields that lack immediate appeal to young people.

Decisions With Direction: Recommendations for a Quality Career Guidance System

The key findings from this study reveal several significant weaknesses in the nation’s career development system. The aforementioned data, and the more comprehensive look at the study’s findings that follows in this report, also provide educators, policymakers, career and workforce development professionals, parents and employers with information that can improve the efficiency and effectiveness of our nation’s career guidance system.

It is our hope that this study will further the awareness of the important issue of career guidance, and that this enhanced awareness will be followed by action. Below are recommendations that all stakeholders who have a vested interest in creating a higher quality career and workforce development system—and those who wish to see more young adults realize their career dreams—can embrace.

Fund and empower K-12 career counselors

Effective career guidance is integral to the secondary education experience. The K-12 system needs educational counselors with career counseling as their primary focus. These counselors should have the resources and professional background needed to assist students in making informed career and educational decisions.

Better utilize the summer months

The career guidance that occurs with our nation’s young adults, parents, teachers and counselors should not be limited to the academic school year. Much can be done to make greater use of our career-tech centers, community colleges, university campuses and local business and industry to provide career exposure. Job shadowing, company or plant tours, internships, and the creation of summer “career camps” are just a few of the underutilized means that can be used to improve career guidance and career decision-making.

Increase partnerships between educators and industry

Educators should play a vital role in the process by which young adults make career decisions. K-12 schools, universities and employers can do much more to increase teachers’ exposure to different careers so that they help to advise students. The use of industry mentors, scholarships for targeted academic programs or career fields, adopt-a-school programs and more creative internship and work experiences serve as a few examples of how these partnerships can be enhanced.

Realigned career recruitment/image campaigns

Salary and job availability are common themes in recruitment campaigns for particular careers. Although these are important, groups seeking to boost high-school students’ interest in

specific careers must create marketing or image campaigns that appeal to the sensibilities of young adults. Is a given career interesting? Enjoyable? Does the career allow a person to interact with people, the community, or society directly or indirectly? Are work hours flexible? When creating career recruitment campaigns, these are the questions that should be answered.

Improved credit transfer among educational institutions

The call for improved credit transfer among educational institutions is a popular one. The findings from this study only serve to fuel the argument for greater articulation between education providers in order to provide increased credit transferability for students. All stakeholders should work to break the barriers that lengthen the time it takes for young adults or individuals “re-careering” to become educated and trained in preparation for any given career. Education leaders and policy makers can take the lead by facilitating and encouraging greater use of streamlined credit transfer among all types of education providers.

Integration of career development systems nationwide

The value of creating a unified, comprehensive, and integrated career development system nationwide cannot be underestimated. A well-educated, well-trained and *balanced* workforce is central to the standing of the U.S. economy in the future global marketplace. The integration of career development systems can serve to streamline efforts, create awareness of career alternatives, and provide young adults with the information needed to make choices and plan for the rest of their lives.

Promotion of the career pathways concept

The implementation of “career pathway” guidance programs can do much to create career awareness among young adults. Education providers can give their students much greater exposure to careers options by creating the structure and offering activities that provide meaningful connections between education and the world of work. The use and innovative application of the career pathways concept will better enable educators and counselors to provide young adults with the information needed to make more informed career decisions.

Decisions Without Direction

*Career Guidance and Decision-Making
Among American Youth*

Comprehensive Report and Data Summary

Conducted for Ferris State University's
Career Institute for Education and Workforce Development,
in partnership with the National Association of Manufacturers,
the Precision Metalforming Association Educational Foundation and
the Associated Equipment Distributors Foundation

May 2002

Overview

Following a series of four pioneering studies of the post-high-school plans of Michigan young people conducted in spring and fall of 2000 for the Ferris State University Partnership for Career Decision-Making (www.ferris.edu/partnership/), EPIC-MRA was commissioned was hired to complete a study of the attitudes and career plans of the nation's high-school juniors and seniors. The study was commissioned by Ferris State University's new Career Institute for Education and Workforce Development with support from the National Association of Manufacturers, the Precision-Metalforming Association Educational Foundation and Associated Equipment Distributors Foundation.

As the Michigan results suggested, this national survey shows that most young people nationwide plan to pursue a four-year degree in college, then follow their hearts into a career that appeals to them on a personal level. The telephone survey of 809 high-school juniors and seniors was conducted in Fall 2001. The survey has a range of error of ± 3.5 percent.

Methodology

Lansing, Mich.-based research consultants EPIC-MRA administered interviews with 809 currently enrolled high-school juniors and seniors from across the United States in October and November 2001. Respondents were selected using an interval method of randomly selecting records of households in the U.S. The sample was stratified so that every area of the country is represented in the sample according to its contribution to the general population.

All surveys are subject to error; that is, the results of the survey may differ from those which would have been obtained if the entire populations were interviewed. The size of the sampling error depends on the total number of respondents in the particular question. For example, 54 percent of the 809 respondents said both their parents have been primarily responsible for helping them plan for a career or job (Question 10). This percentage would have a sampling error of plus or minus 3.5 percent. That means that with repeated sampling, it is very likely (95 times out of every 100), that the percentage

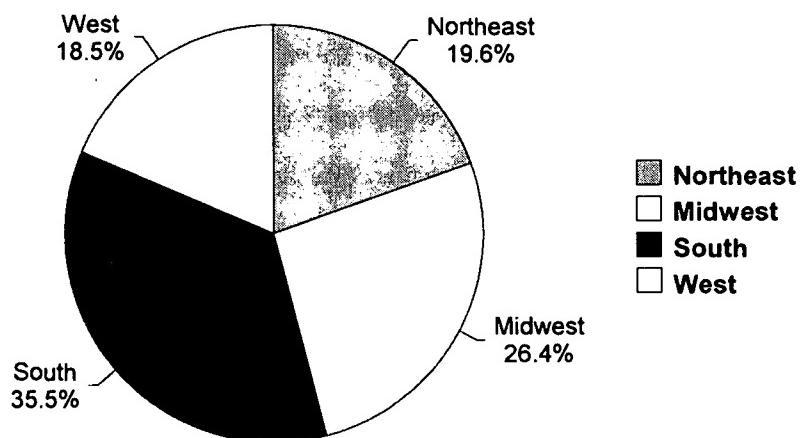
for the entire population would fall between 50.5 percent and 57.5 percent, hence 54 percent ± 3.5 percent.

Demographics

Young people who responded to this survey were perfectly divided between males (50 percent) and females (50 percent), and nearly evenly divided between high-school juniors (47 percent) and seniors (53 percent)¹. They ranged in age from 14-20 years. In contrast to our Michigan studies, this time we only talked to young people currently enrolled in school.

The sample was stratified to reflect the population distribution by state. For purposes of this analysis, we've aggregated the states into the familiar regions.

Regional Distribution of Respondents



¹All percentages in the text are given to the nearest whole percent.

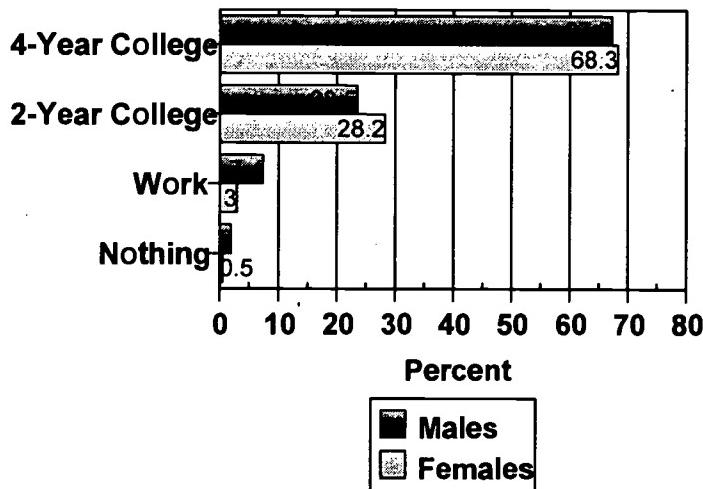
Four-year bias confirmed nationwide

As we found in our 2000 survey in Michigan, more than nine out of 10 nationwide (94 percent) say some kind of post-secondary education figures in their plans. For two-thirds (68 percent) it'll be a four-year college or university, while another one-fourth (26 percent) will attend a two-year community college or technical trade school. Only a handful—6 percent—plan no further schooling.

We found this trend holds true in broad terms across the board. However, some marginal differences associated with gender, race and location make the details interesting. For example, both males and females are heavily oriented toward post-secondary education, but girls slightly but significantly ($p \Theta^2 = .004$) exceed the boys in their zeal for more schooling after high school.

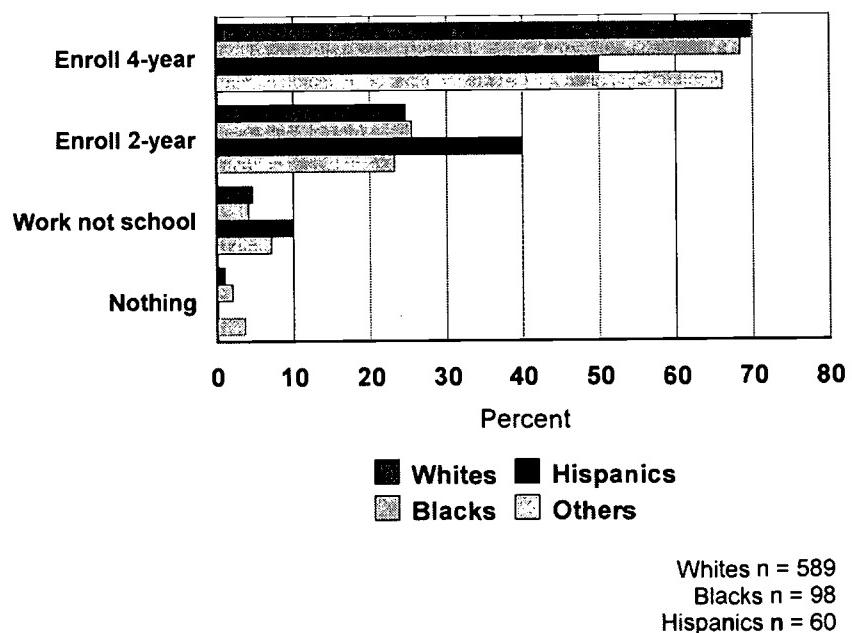
**Which of the following comes closest to describing
what you expect to do after graduation from high school?**

By gender (n = 809)



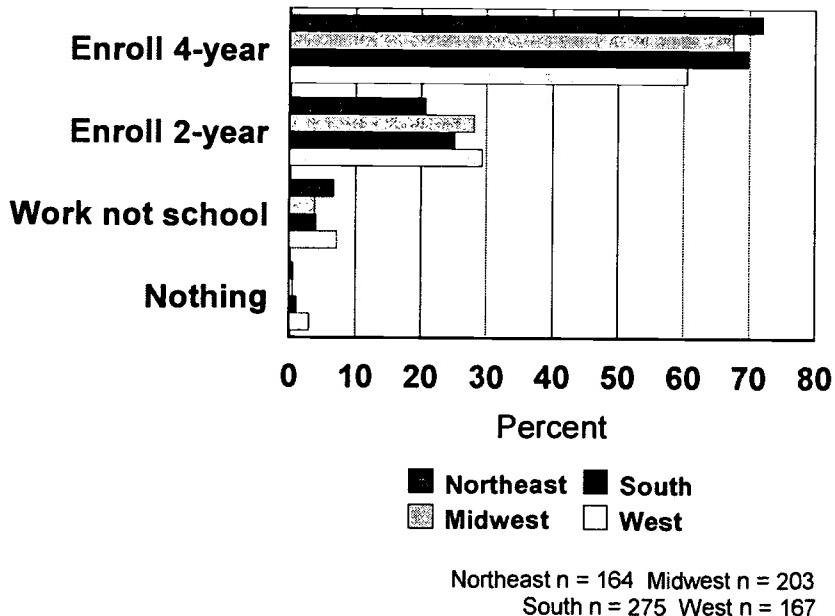
Note in particular that 28 percent of girls plan on a two-year post-secondary educational experience, versus only 24 percent of boys. On the other hand, only 3 percent of female respondents plan to join the workforce right out of school, compared to 7 percent of males. As with gender, so with race/ethnicity. The general trend is toward post-secondary education for the great majority, and this holds for all racial and ethnic groups. Still, some differences ($p \oplus^2 = .066$) can be observed. Specifically, Hispanics are much less likely than whites or blacks to be headed toward a four-year post-secondary school, and much more likely to favor a two-year school. The following chart compares four racial and ethnic groups.

**Which of the following comes closest to describing
what you expect to do after graduation from high school?
By racial/ethnic group (n = 803)**



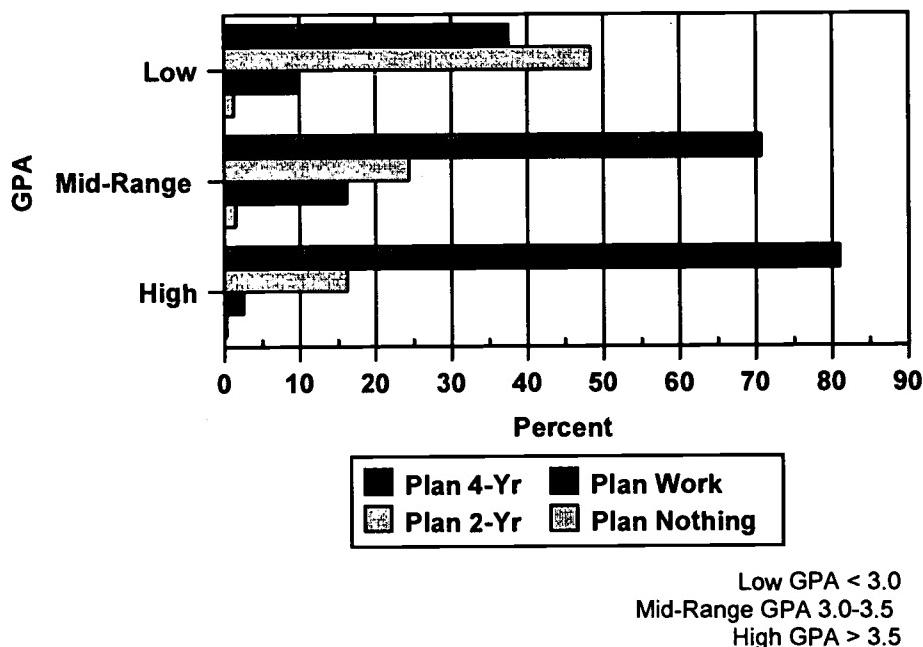
The data also suggest, though not conclusively ($p \bullet^2 = .129$), that there are some marginal differences in post-high-school plans in different regions of the country. Again, the overwhelming trend everywhere is to attend college, but the college of choice is more likely to be a four-year school in the Northeast than elsewhere and more likely to be a two-year school in the West than elsewhere. This finding may be related to ethnicity, as well, since Hispanics are more heavily represented in the West.

**Which of the following comes closest to
describing what you expect to do after graduation from high school?
By geographic region (n = 809)**



As we found in Michigan, a student's grades also are strongly linked to his or her plans. Some students at every GPA level aspire to college, and some at every level have no plans for post-secondary education. But the likelihood of a particular preference changes dramatically with GPA.

How GPA affects students' choices (n = 773)



Students with high GPAs (above 3.5) are overwhelmingly likely to plan on further education (either in a two-year or a four-year institution) as opposed to work or something else – the ratio is 35 to 1. Students with low GPAs (in the 1.0-2.9 range) also prefer college to work or something else, but by only a 6 to 1 ratio. Students in the middle prefer college by a 19 to 1 ratio.

Similarly, the selection of a four- or two-year school is strongly related to GPA. High-GPA students pick four-year schools over two-year schools by 5 to 1. Mid-GPAs also prefer four-year schools, but by only 3 to 1. Low-GPA students, on the other hand,

actually prefer two-year schools, which they pick over four-year institutions by about 1.3 to 1.

It is not surprising that household income also is related to a student's choice. College may not be solely for the rich, but the ranks of those headed for four-year schools are dominated by the upper levels of the income spectrum. Just over three out of five (62 percent) high-school juniors or seniors bound for four-year institutions come from households with incomes of \$60,000 or more, and fully a fourth of them (26 percent) come from households with incomes of \$100,000 or more. Only one four-year-college-bound student in five (21 percent) comes from a household with an income of \$40,000 or less.

Career goals set for most students

Overall more than seven out of 10 (72 percent) juniors and seniors surveyed say they've picked out a career to pursue, either right out of high school or after college. There are notable differences, however, from subgroup to subgroup. For example, Hispanic young people are much less likely than all others to have made a career decision – just 57 percent say they have ($p \oplus^2 = .004$). Similarly, young people in the West are less likely than others to have made a decision (66 percent, $p \oplus^2 = .065$), a finding that also may be related to the fact that Hispanic students are more heavily represented in the West.

A factor that appears to play a strong role in determining which young people are likely to have made a career decision is parental influence. Young people who say they've been most influenced by their mothers are less likely than the overall average to have made a career decision – about 64 percent say they have, vs. the overall average of 72 percent. By contrast, young people who've been most influenced by their fathers are quite a bit more likely than the overall average to have made their choice – 83 percent of such kids say they've picked a career. Young people who say the influence of both parents has been about equal fall in the middle, at 74 percent, or about the overall average ($p \oplus^2 = .014$).

Gender of the student appears to have no significant effect on the likelihood of having made a career decision. The difference between a father-influenced student and a mother-influenced student amounts to this: father-influenced young people are 29 percent more likely to have made a career decision.

Students prefer “hi-touch” over “hi-tech”

Our study shows that young people's preference for careers involving human contact and interaction, which we spotted in Michigan last year, is observable nationwide. Among those who say they've made a career decision or are leaning toward a particular career, the top choices are medicine, education, computers, law and business. Looking at the top 11 (since there's a tie for tenth place), we see a mix of technical and human services fields, with the latter getting the biggest numbers.

The table below shows the aggregate choices of the 72 percent who say they've made a definite decision and the additional 15 percent who say they're leaning toward a choice. These top 11 fields account for just over two-thirds (68 percent) of all career choices or preferences among the nation's high-school juniors and seniors.

What career or job have you decided to pursue/are you most interested in pursuing? (n = 695)

Health care and medical	21.0%
Education, teaching	9.4%
Computers	6.8%
Law	6.8%
Business	4.7%
Science	4.0%
Engineering	3.2%
Military service	3.2%
Veterinary, animals	3.2%
Automotive	2.7%
Art	2.7%

There are strong trends in the data, particularly when we focus on the top five choices. Collectively they represent the futures of about two young people out of five (42 percent). There is no question that young men and women have different career preferences. Health care, the leading choice overall, appeals strongly to both groups but more so to young women than young men. It is the choice of more than half (53 percent) of the young women whose choice is among the top five, whereas it is chosen by less than a third (30 percent) of the young men with a top-five preference. Education and business both appeal about equally to both groups. On the other hand, law and computers hold much stronger attractions for young men than for young women. The table below sets out the differences ($p \Theta^2 = .000$).

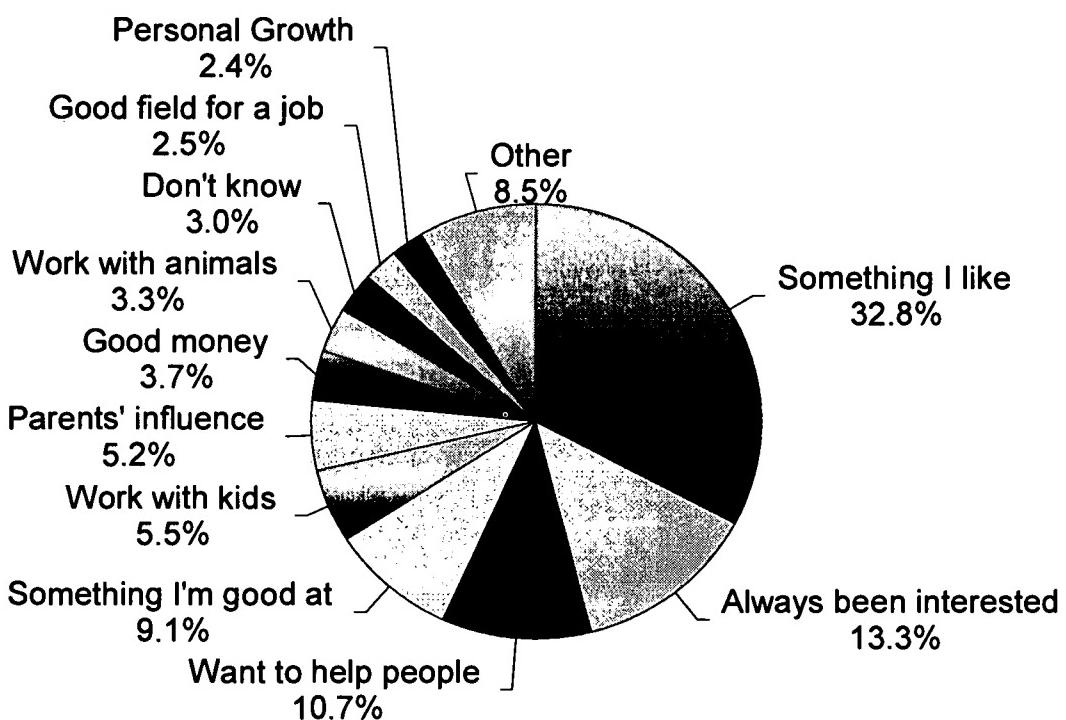
**Choices of young people who prefer a top-five career selection
By gender (n = 338)**

<i>Career Selection</i>	<i>Males</i>	<i>Females</i>	<i>Overall</i>
Health care and medical	29.8%	52.8%	43.2%
Education, teaching	16.3%	21.3%	19.2%
Computers	19.9%	9.6%	13.9%
Law	24.1%	6.6%	13.9%
Business	9.9%	9.6%	9.8%
TOTAL	100.0%	100.0%	100.0%

Most choose personal interest over practicality

The choice of a career is influenced by many factors that undoubtedly interact in complicated ways. Here are the factors the young people themselves said were most influential in their choice of (or decision to lean toward) a career.

What is the main reason why you chose that career or job? (n = 673)



We can divide these responses into two groups. The young person interested in becoming a teacher who says that's her choice because she likes kids is expressing the same kind of personal interest in the career as the future engineer who says she's always been interested in the subject or it's something she likes. Those who want work

with animals or help people express the same sort of preference. Young people who gave these responses form a group whose primary attraction to a career is immediate and personal: they feel a kind of calling.

The other young people have a more pragmatic orientation. For some it is a matter of sensing a good fit between their own capabilities and the requirements of the job ("something I'm good at"), for others the field may represent a line of least resistance ("good field for a job," "parents' influence") and for still others the attraction seems purely financial ("good money").

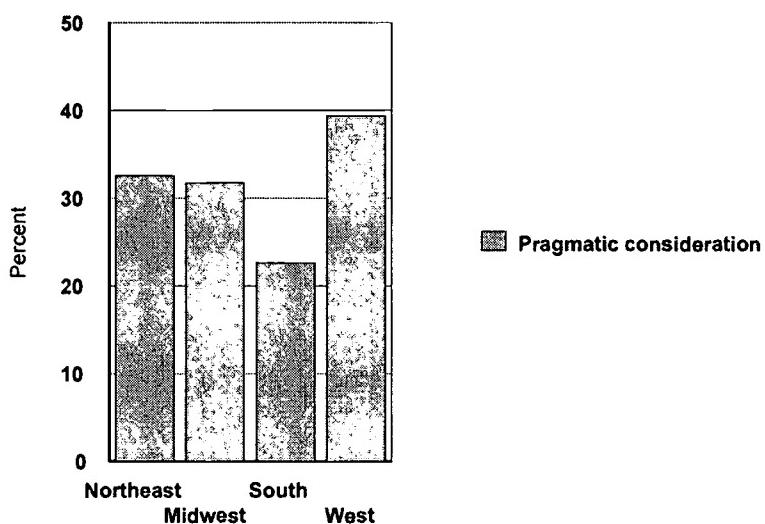
In Michigan we found these two groups split two-thirds to one-third (66 percent vs. 34 percent), with the larger group choosing a career on the basis of personal attraction. In this study we find the same trend exists nationwide. Overall, 70 percent of our sample cited a reason that we classified as personal attraction as the main reason for their choice of a career, while 30 percent cited a reason that was classified as a pragmatic consideration. This type of analysis is subjective, of course – reasons like "parental influence" could be deeply personal, and the distinction between being interested in a subject and being good at it is not always clear. On the other hand, responses indicating a decision based on the young person's personal interests or perceived strengths clearly dominate responses based on external factors such as job availability or pay.

Looking closer, we find significant effects due to gender, race, income, geographic region and GPA. Though both sexes are more likely to cite personal attraction over pragmatic consideration as the main reason for their career choice, young men are far less likely than young women. Among the males, personal attraction predominates over pragmatic considerations by 58 percent to 42 percent – the ratio is about 1.4 to 1. Among females, however, 81 percent cite personal attraction, vs. 19 percent who cite pragmatic considerations, a 4.3 to 1 ratio ($p \oplus^2 = .000$).

A student's home turf also seems to have an effect on his or her career choice.

Pragmatism is strongest in the West, weakest in the South, as the following chart shows ($p \Theta^2 = .008$).

**Underlying reason for career choice
By geographic region (n = 652)**



Note that of the 21 students who say they want to be veterinarians, or otherwise work with animals, every one is motivated by a personal attraction for the field. Students interested in education, science and health care run about nine personalists to one pragmatist. Art, computers and automotive attract about two personalists for every pragmatist. Law and engineering attract both about equally. Business, however, attracts about two pragmatists for every personalist, and the military attracts mostly pragmatists – the ratio is about six to one.

Opportunity knocks, but few answer

Regardless of their career selection, the students were asked to mention several career or job-related areas where they see the *greatest opportunity* for young people today. We can sort these by the numbers of young people mentioning them and compare the list with their own career preferences.

**Perceived opportunity versus interest
for top 11 career selections**

<i>Career Selection</i>	<i>Percent Selecting (A)</i>	<i>Percent Perceiving Opportunity (B)</i>	<i>Ratio B/A</i>
Computers	6.8%	47.6%	7
Business	4.7%	16.8%	3.6
Engineering	3.2%	8.7%	2.7
Education, teaching	9.4%	24.3%	2.6
Health care and medical	21.0%	51.1%	2.4
Military service	3.2%	7.3%	2.3
Law	6.8%	14.7%	2.2
Science	4.0%	6.9%	1.7
Automotive	2.7%	3.4%	1.2
Veterinary, animals	3.2%	0.6%	0.2
Art	2.7%	0.5%	0.2

The column headed “Percent Selecting (A)” has the information already presented for the top 11 career choices. The column headed “Percent Perceiving Opportunity (B)” sets out the proportion of young people who perceive the field as one of those offering the greatest opportunities for young people today (up to four could be mentioned).

In the column headed “Ratio B/A” we give the ratio of the proportion of young people who perceive high opportunity in a given field to the proportion who say they intend to go into the field. This ratio is a measure of the discrepancy between “that’s a great field for someone” and “that’s the field for me.” Values greater than 1.0 mean young people (in the aggregate) perceive an excess of opportunity over interest – such fields have opportunity going begging, and the higher the ratio, the greater the “unpursued opportunity.” At the other end of the scale, values less than 1.0 mean an excess of interest over perceived opportunity.

In an economist's ideal world, all the values would be 1.0, signifying that actual interest was perfectly rationalized with perceived opportunity. Young people would pursue fields in direct proportion to the opportunities they saw in them.

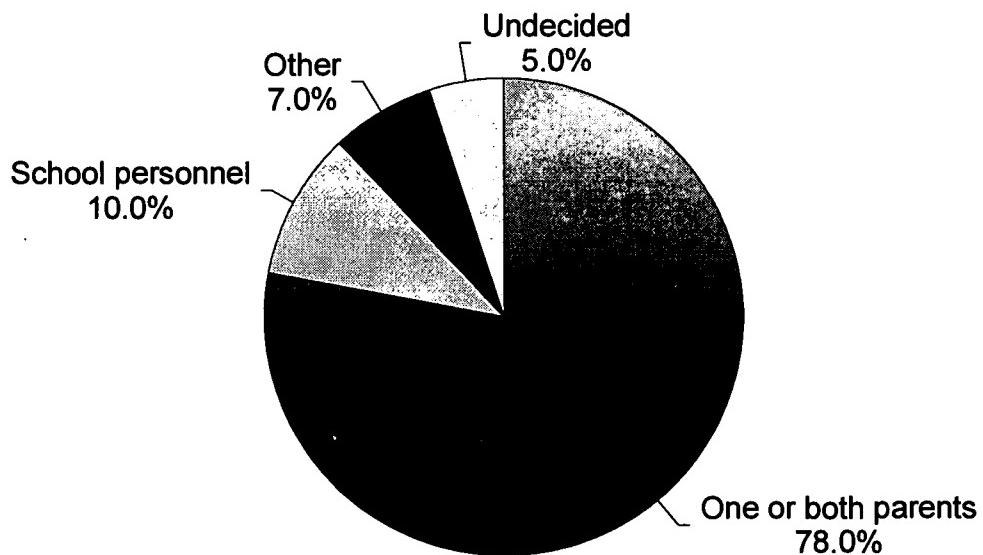
The figures are telling us that for most of the top 11 career choices, young people perceive opportunity aplenty. And it is probably reasonable to assume that perceptions of opportunity are influenced by the *need to perceive* opportunity that a young person typically has. The net effect of these two factors would seem to be illustrated by the many values in the range from 1.7-2.7, or $2.2 \pm .5$. We can take that figure as a kind of norm, or balance point, between the tendency to perceive opportunity in a field and the tendency to have personal interest in it.

The interesting fields are the ones toward the top and bottom ends of the list. At the top, with a ratio of 7 times as much perceived opportunity as expressed personal interest, is the field of computers. The message is, "wonderful opportunity, but not for me." Careers in business, too, substantially exceed the norm in unpursued opportunity. At the bottom of the list are careers in veterinary medicine and other animal-related careers, and careers in art (mostly applied fields, such as graphic design). In these cases, only one student in five who said they were going to pursue them believes they offer good opportunities.

Adults have bigger role to play in career choices

Another factor that influences young people's career decisions is the advice and counsel they receive from the adults in their lives. For 78 percent, one or both parents are sources of this advice. Ten percent say someone at school, either a teacher or a counselor, is more influential, and a handful (7 percent) say someone else has been helpful.

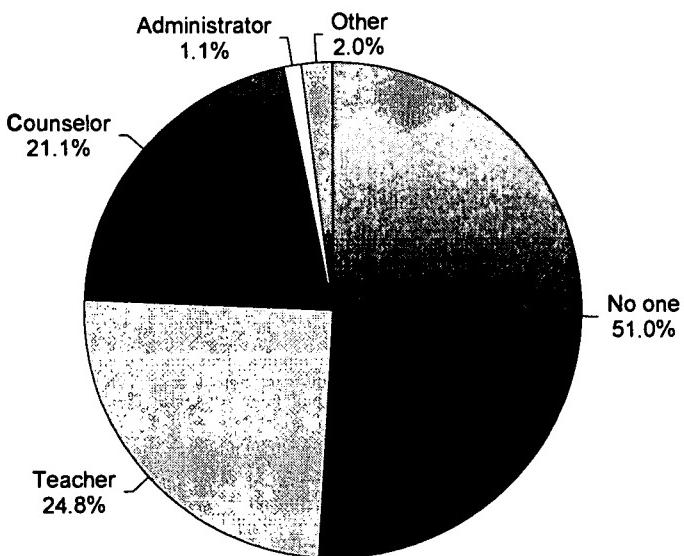
**Who is primarily responsible
for helping plan for a career or job? (n = 809)**



Particular attention was focused on the influence of school personnel. Regardless of whether the parents or the school personnel were more influential, the respondents were asked whether someone at school provided helpful career advising. *Fifty-one percent* of young people could identify no one at school who provided this

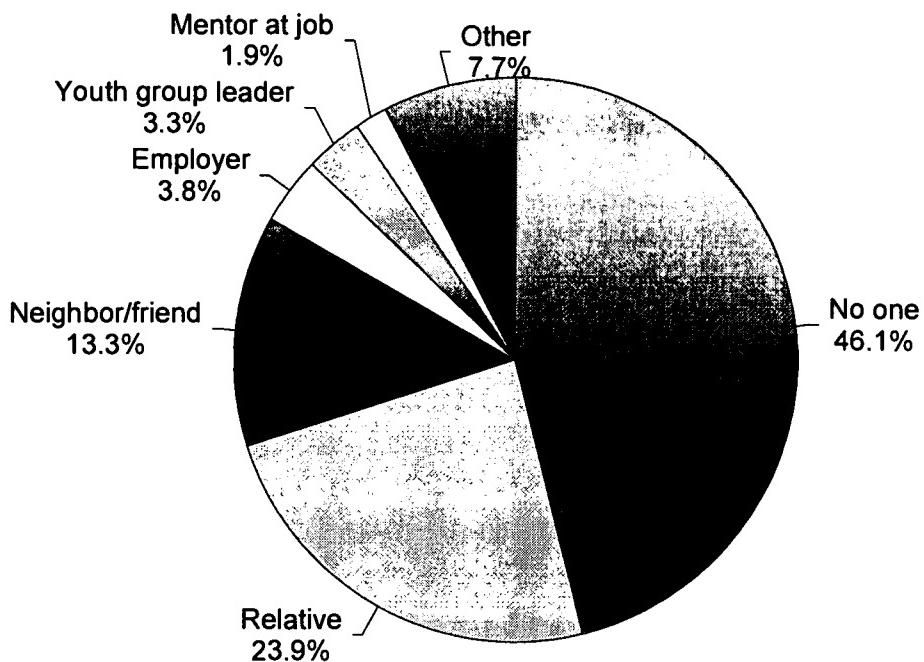
help. Among the 49 percent who said someone at school had helped with career counseling, it appears that teachers are doing more than counselors.

Who in high school has been a mentor or especially helpful in advising on career or job options, or options to further your education past high school? (n = 809)



Respondents were also asked whether another adult – neither a parent nor someone associated with school – might have been helpful in the career decision-making process. Again, only about half (53 percent) of the young people surveyed could identify someone in this role.

Who not associated with your school has served as a mentor or been helpful in advising you on career options or options to further your education? (n = 809)



Taking into account all the adults who've offered career guidance, almost four out of five young people (79 percent) said the amount that an adult talked to them was "some" or "a lot," while one in five (20 percent) said "only a little" or "not at all." However, since parents are the adult group most students credit as primarily responsible for career counseling, it seems appropriate to look at the amount of time they spend talking careers with their children.

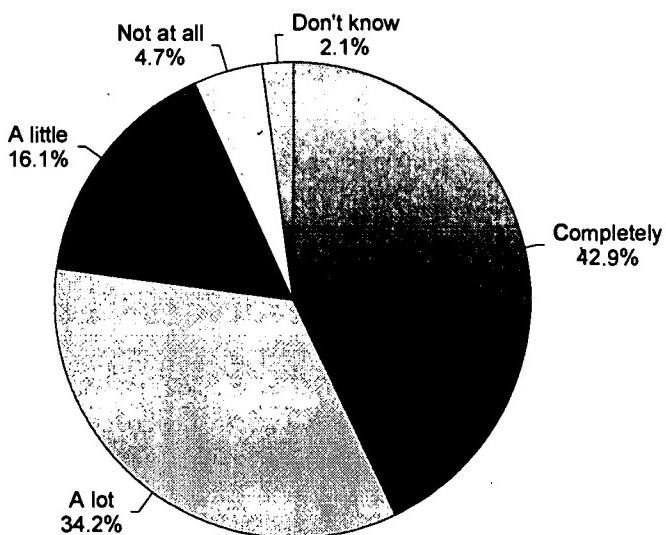
Students were able to name a number of specific high-school activities that were helpful in career decision-making. Here are the top 10 items mentioned.

Can you think of anything your high school did/is doing to help you explore different employment opportunities, careers or jobs? (n = 809)

Career classes	14.3%
Career counselor	8.7%
Career day	8.2%
Job fair	6.7%
Career center	6.3%
Career speakers	5.1%
College night	4.7%
Brochures, flyers	3.5%
Testing	3.3%
Internships, apprenticeships	3.0%

It should be noted that one student in five (20 percent) could think of nothing the high school was doing to help with career decision-making. As we noted before in the Michigan study, this seems to be an area with a great deal of untapped potential.

**How much do you think your grades in school influence
the type of career or job you can consider? (n = 809)**



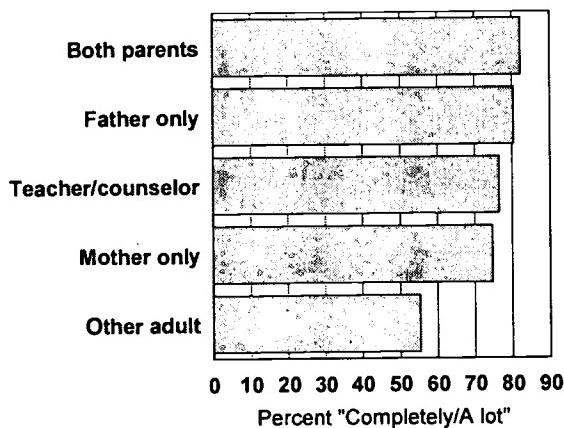
Though the overall trend is to believe that grades matter, we found some marginal differences that suggest subtle but revealing differences in opinions. Growing older seems to have something to do with the perception that grades matter. Among the 14-16 year-olds in the sample, 75 percent say grades matter "completely" or "a lot," while the 17 year-olds push the figure to 77 percent and the 18-20 year-olds up it to 80 percent ($\oplus^2 = .450$).

A factor that appears to be clearly associated with the perception that grades matter is race/ethnicity. Among the four racial groups, blacks have the greatest tendency to believe grades matter, while Hispanics have the least tendency to believe this ($\oplus^2 = .024$).

Adult influence is another factor that appears to have a definite effect on the perception that grades matter. Young people influenced by both parents have the greatest tendency to believe in the importance of grades, though those influenced primarily by their fathers come in a close second. Those influenced by their mothers only, however, fall below the average, while those influenced by someone other than a

parent or a school person (i.e. a relative, family friend, youth group leader) fall well below it. The chart below shows the differences ($p \bullet^2 = .000$).

**How much do you think your grades in school influence
the type of career or job you can consider, by influencing adult? (n = 767)**



As we found last year in Michigan, young people nationwide tend to rate all the courses in the college prep curriculum high in importance. Communications ranks at the head of the list, with foreign languages at the bottom. The table below gives the percentage of young people rating each subject as "very important" or "somewhat important."

Of the following courses, how important is each in preparing students to get a good job—percent rating "very" or "somewhat important" (n = 809)

Communications, including reading and writing	97%
Mathematics (three years)	88%
English (three years)	87%
Economics and business management	84%
Social studies	80%
Science (two years)	79%
Literature	74%
Foreign languages (two years)	65%

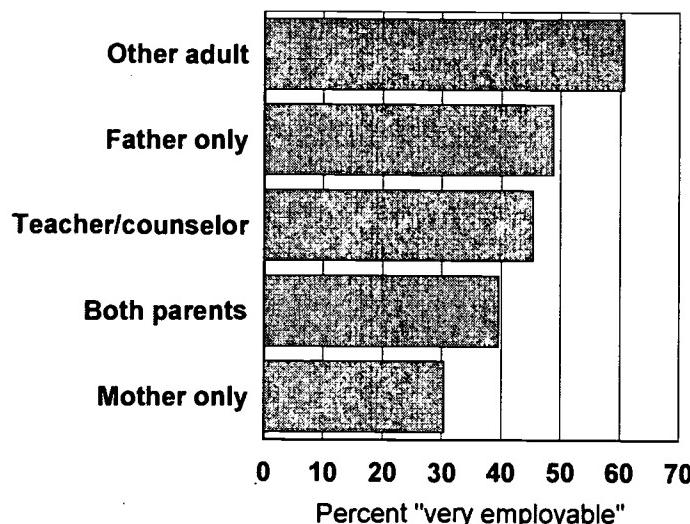
Playing the confidence game

Regardless of the status of their career plans, we asked the young people how confident they would be of getting a job if they entered the job market today. About two out of five (42 percent) said they'd be "very employable," while the majority (58 percent) expressed some degree of doubt, implied by "somewhat employable," "only slightly employable," "not employable at all," or "don't know." There are interesting variations in these responses from group to group.

Females lag males in confidence, by a small but significant amount. Forty-five percent of high-school boys express full confidence in their employability, while among the girls the number is only 39 percent ($\chi^2 = .054$).

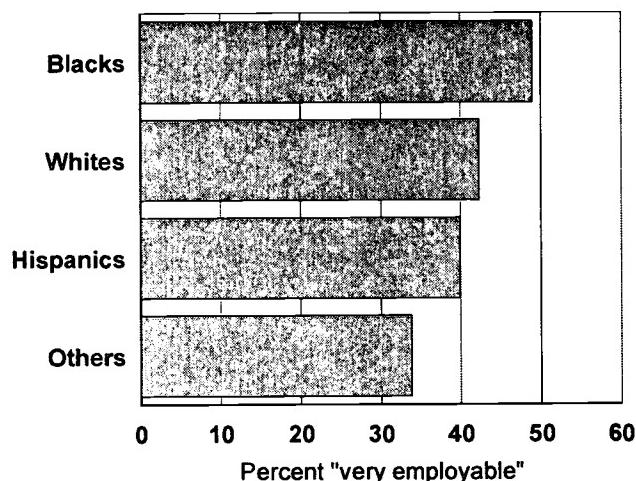
Another trend that's likely to be significant is associated with the influential adult in a young person's life. Among those who identified an adult as being influential (95 percent of the total), those for whom the adult was someone like a family friend, a relative, a youth group leader or a mentor at work expressed the most confidence in their employability. Those for whom the influential adult was a mother only (not both parents) expressed the least confidence in their employability. Here are the details.

Thinking about skills you can offer if you were to enter the job market today, how employable would you consider yourself to be, by influencing adult? (n = 767)



Another factor that appears to affect a youngster's confidence in his or her employability is race. Again, the data are not conclusive, but they point to a trend worth watching. It appears that black young people have high levels of confidence (a healthy sign), but Hispanics and racial "others" lag the overall average ($p \oplus^2 = .317$).

Thinking about skills you can offer if you were to enter the job market today, how employable would you consider yourself to be, by race/ethnicity (n = 803)

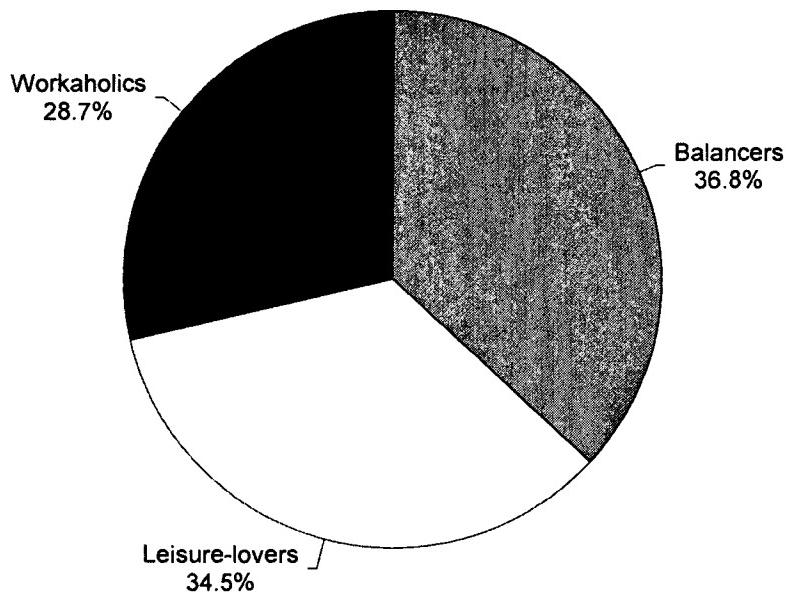


Visions of the good life

Very few young people plan just to get by in life, but on the other hand, not all subscribe to the same vision of what makes for the good life either. We asked which of the following visions of the future young people subscribed to: plenty of money and the free time to enjoy it; plenty of money but work hard to earn it and have less free time; or adequate money with free time to do the things you enjoy.

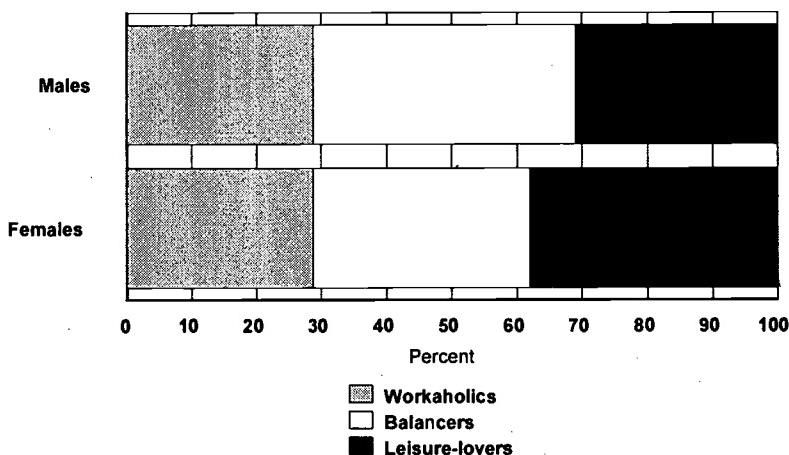
We'll call those who opt for the first view the balancers, those who opt for the second the workaholics and those who opt for the third the leisure-lovers. The students divide almost evenly among the groups.

**Which of the following best describes
the quality of life you expect? (n = 766)**



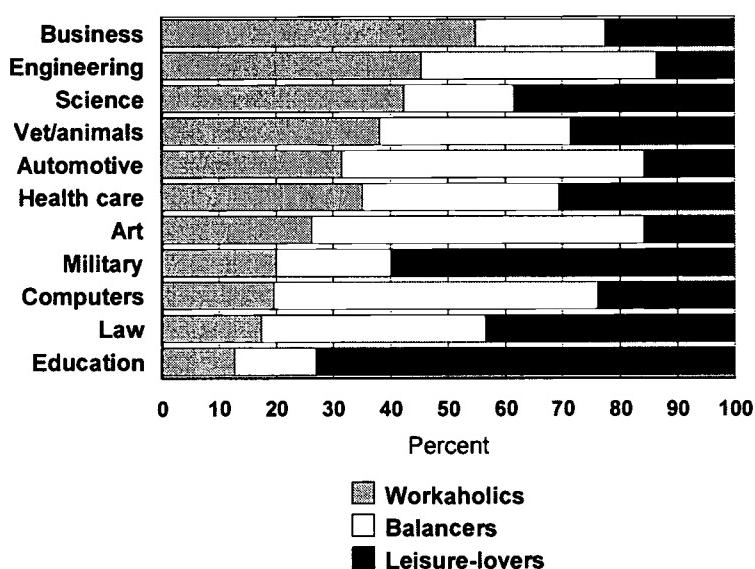
The details, however, make for interesting analysis. To begin with, we can dispense with the stereotype that males are the workaholics among us. The genders are exactly even, at 29 percent, in subscribing to that vision of the good life. The differences between them lie rather in whether the rest tend to opt for balance – as the boys do – or leisure, as the girls do ($\Phi^2 = .071$).

**Which of the following best describes
the quality of life you expect, by gender? (n = 766)**



Are career choices associated with visions of the good life? They certainly are. We don't find many workaholics headed for careers in education – or in law, computers or the military. Plenty of them are going into science, engineering and business ($p < .000$).

**Which of the following best describes
the quality of life you expect, by career choice? (n = 320)**



With the career field's stereotypical free summers, it might not be surprising to see education attracting the highest prevalence of leisure-lovers. What may be surprising is to see nearly the same profile among those attracted by military service: a strong majority of leisure-lovers with the rest evenly divided between balancers and workaholics. Or consider this unlikely trio: art, computers and automotive careers. They share a profile in which balancers make up the majority, with the others about evenly divided between workaholics and leisure-lovers.

Attitudes toward technical training improving?

A battery of questions designed to get at young people' overall attitudes about the role of technical training provide an interesting point of reference between the present survey and the one done in Michigan in early 2000. In particular, some attitudes toward technical training and technical careers may be shifting to the more positive end of the spectrum. Note the numbers in boldface in the right-hand column below, which records figures from the present survey.

Percent of high-school students who agree with each statement
(Michigan study n = 450; National study n = 809)

<i>Statement</i>	<i>Percent who agree Michigan study</i>	<i>Percent who agree National study</i>
The best jobs and careers require at least a 4-year college education.	71%	68%
There are plenty of good-paying high-tech jobs available that only require 2 or 3 years of job training and pay as much as \$40,000 to \$80,000 per year.	74%	72%
Even though jobs in the health care industry pay well and offer good benefits, mergers and layoffs in the health care industry make the future of health care jobs less secure than other jobs.	51%	40%
There is a sense of embarrassment associated with vocational job training programs and college courses that make them less attractive than 4-year college degrees.	42%	41%
Pursuing technical careers may provide high paying jobs, but when students take job-training courses, they limit the kind of professional careers they can achieve.	58%	45%
Having training in the use of technology is important today if students are going to have a chance at getting a good paying job.	84%	89%

Among these six questions, the third one probably reflects the influence of yesterday's headlines more than any other factor. It's not surprising that in the spring of 2000 a bare majority of Michigan high-schoolers had their doubts about the strength of healthcare— that survey followed closely on the heels of some widely publicized mergers in large healthcare systems in the state. Today, however, the mergers in healthcare are old news, and the drop in negative responses reflects a more optimistic outlook.

The question about whether technical training limits choice of career shows a distinct shift in outlook. Nationally, young people today are about 22 percent less likely to believe this is so today than they were 18 months ago in Michigan. We also note a warming trend in attitudes toward technical training in the last question. Even more students believe training in technology is important to their employment outlook today than formerly.

Survey Overview and Demographic Analysis

Post-high school expectations

Respondents were asked which of a list of descriptive phrases comes closest to describing what they expect to do after graduation from high school. In rank order, the responses were:

enroll in a 4-year college or university	65%
enroll in a 2-year community college, or technical trade school or program	24
work full or part time, but not attend school after high school	5
neither work nor attend school	1
enroll in a 4-year college or university and also work (<i>volunteered</i>)	3
enroll in a 2-year college or trade school and also work (<i>volunteered</i>)	2
enroll in a 4-year college or university	65

Career/job plans

When asked if they had made a decision about what type of career or job they would like to pursue after high school, respondents answered:

* yes, has made a decision	72%
no, has not made a decision	22
undecided/don't know/unsure	6

* Those who said "yes" were first asked what career/job they have decided to pursue, and then to state the main reason why they chose that career/job:

Career/job chosen

medical	21%	cosmetology	2	forestry	1
education	9	dental	2	graphic design	1
computers	7	electronics	2	marketing	1
legal	7	journalism, writer	2	massage therapist	1
business	5	law enforcement, firefighting	2	ministry, social work	1
engineering	4	music, dance	2	pharmacy	1
military	4	professional sports	2	photography	1
science	4	architecture	1	politics	1
automotive	3	chef, restaurant owner	1	theater	1
finance, accounting	3	child care	1	welding	1
vet, animals	3	farming, agriculture	1	other	1
art	2	fashion/interior design	1		

Reasons for choice

something I like	33%	personal growth	3
always been interested	14	work with animals	3
want to help people	10	family business	2
something I'm good at	9	fun	2
work with kids	6	interaction with people	2
parents influence	5	authority and respect	1
good field for a job	3	good career path to start	1
good money	3	the travel	1
		undecided/don't know/refused	1

-- specific interests, 1st and 2nd choices

All respondents were asked if there is any specific career or job they might be interested in:

yes, is interested in a career or job area	52%
no, is not interested in a career or job area	25
undecided/don't know/unsure	23

* Those who said "yes" were first asked what career or job area they are most interested in pursuing, and then to state the main reason why they chose that career/job:

Career/job chosen

medical	23%	fashion/interior design	3	forestry	2
education	13	law enforcement, firefighting	3	military	2
art	7	music, dance	3	electronics	1
computers	7	photography	3	graphic design	1
legal	7	vet, animals	3	ministry, social work	1
science	5	architecture	2	professional sports	1
journalism, writer	4	cosmetologist	2	theater, drama	1
automotive	3	farming, agriculture	2	welding	1
business	3	finance, accounting	2		

Reasons for choice

something I like	32%	fun	2
want to help people	14	good career path to start	2
something I'm good at	10	work with kids	2
always been interested	8	interaction with people	1
good money	6	the travel	1
work with animals	3	undecided/don't know/refused	14

All respondents were then asked "Is there another career or job area ... you might consider (as a second choice)?":

medical	15%	architecture	2	chef, restaurant owner	1
education	9	child care	2	communications	1
computers	6	construction	2	cosmetologist	1
law enforcement, firefighting	4	marketing	2	electronics	1
legal	4	military	2	fashion/interior design	1
science	4	ministry, social work	2	pharmacy	1
business	3	politics	2	photography	1
engineering	3	theater, drama	2	professional sports	1
finance, accounting	3	vet, animals	2	other	1
journalism, writer	3	art	1	undecided/don't know/refused	12
music, dance	3	automotive	1		

Influences on career/job planning

-- parental/school

All respondents were asked if one or both of their parents have been "primarily responsible for helping you plan for a career or job," or if a counselor or teacher in high school has been primarily responsible for providing career- and job-planning assistance:

parent (mother)	14%	78% Total
parent (father)	10	PARENTS
parent – both parents equally (<i>volunteered</i>)	54	
counselors or teachers	10	
other (<i>volunteered</i>)	7	
undecided/don't know	5	

-- in-school mentor

When respondents were asked if there is a particular person in high school who has been a mentor or especially helpful in advising on career or job options, or on options to further education past high school, the answers were:

no one	50%
yes, a school teacher	26
yes, a school counselor	21
yes, a school administrator	1
* yes, some other person with the school	2
* [16 respondents]	
coach	50%
friends	38
pastor	6
security guard	6
undecided/don't know	1

-- extra-curricular mentor

When asked if a particular person not associated with school has served as a mentor/advisor on career/job options, or in furthering education past high school, respondents said:

no one	45%
yes, a relative	24
yes, a respected neighbor or family friend	13
yes, an employer	4
yes, person associated w/Scouts - community youth groups	3
yes, a mentor at a job or co-op position	2
* yes, some other person liked and respected	8
* [62 respondents]	
coach	18%
friends	18
pastor	13
social worker	11
college mentor	8
doctor	8
aunt, uncle	6
my boss	3
security guard	3
sibling	3
other	8
undecided/don't know	1

-- extent of parental involvement, opinion of career/job options

All respondents were asked how much time they have spent over the past few months discussing career or job options with one or both of their parents:

less than an hour	11%
about an hour	14
one to three hours	24
more than three hours	30
not at all	18
undecided/don't know	3

Respondents who cited any time increment were asked to identify the top three or four career or job related areas they discussed with their parents:

	<u>Areas</u>					<u>Areas</u>			
	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>		<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
medical	20%	19%	20%	12%	theater, drama	2%	2%	2%	3%
education	9	11	6	7	chef, restaurateur	1	1	2	--
business	6	5	6	7	child care	1	1	1	--
computers	6	5	5	4	cosmetologist	1	--	--	--
legal	6	6	5	4	dental	1	1	1	1
engineering	3	3	--	5	electronics	1	1	3	3
finance, accounting	3	3	1	3	farming, agriculture	1	--	1	--
military	3	3	3	--	fashion/interior design	1	1	3	--
science	3	4	5	8	graphic design	1	1	1	--
vet, animals	3	3	3	1	marketing	1	1	2	--
architecture	2	3	1	1	ministry, social work	1	2	--	3
art	2	3	1	1	photography	1	1	--	3
automotive	2	2	1	3	clerical	--	1	2	1
construction	2	1	2	--	communication	--	1	--	1
journalism, writer	2	1	3	7	forestry	--	--	1	1
law enforcement, firefighting	2	4	2	8	massage therapy	--	1	--	3
music, dance	2	3	3	7	pilot, airline steward	--	1	1	--
pharmacy	2	1	1		plumber	--	--	--	--
professional sports	2	1	2	1	politics	--	1	1	4
					real estate	--	--	1	--
					other	1	--	--	--
					undecided/don't know/refused	4	5	10	--

cumulative percentages -- 1 st – 4 th areas					
medical	71%	theater, drama	9%	marketing	4%
education	33	automotive	8	massage therapy	4
business	24	electronics	8	pharmacy	4
computers	24	architecture	7	child care	3
legal	24	art	7	graphic design	3
science	20	ministry, social work	6	communications	2
law enforcement, firefighting	16	politics	6	farming, agriculture	2
music, dance	15	professional sports	6	forestry	2
journalism, writer	13	fashion/interior design	5	pilot, airline steward	2
engineering	11	photography	5	cosmetologist	1
finance, accounting	10	chef, restaurant owner	4	real estate	1
vet, animals	10	construction	4	other	1
military	9	dental	4	undecided/refused	19

These respondents were then asked, "Is there one career or job area that your parents advised you to either pursue or at least consider more than any other?":

medical	24%	graphic design	2%
education	11	marketing	2
legal	8	pharmacy	2
computers	7	science	2
business	6	chef, restaurant owner	1
engineering	6	construction	1
finance, accounting	4	electronics	1
journalism, writer	4	farming, agriculture	1
law enforcement, firefighting	4	music, dance	1
military	3	politics	1
architecture	2	theater, drama	1
automotive	2	vet, animals	1
dental	2	undecided/don't know/refused	1

They were then asked if there is there one career or job area their parents advised them NOT to pursue or consider:

military	14%	clerical	2%
law enforcement, firefighting	10	counseling	2
art	8	factory	2
professional sports	8	finance	2
fast food	7	liberal arts	2
theater, drama	6	ministry	2
legal	5	modeling	2
medical	5	science	2
construction	4	vet, animals	2
education	4	computers	1
music, dance	4	cosmetology	1
airline industry	2	electronics	1
child care	2	hotel/motel	1
		other	2

Perceived influence of high school grads

All respondents were asked how much they think their grades in school influence the type of career or job they can consider:

completely influence careers or jobs	43	77% Total
influence a lot	34	COMPLETELY/A LOT
influence a little	16	21% Total
not at all	5	LITTLE/NOT
undecided/don't know	2	

They were then asked if they agree or disagree with the statement "low grades eliminate many careers you can consider":

strongly agree	63	83% Total
somewhat agree	20	AGREE
somewhat disagree	11	16% Total
strongly disagree	5	DISAGREE
undecided/don't know	1	

Importance college preparatory courses, generally/specific

Asked how important college prep courses are to getting a job, students said:

very important	60	87% Total IMPORTANT
somewhat important	27	
only a little important	7	11% Total UNIMPORTANT
not important at all	4	
undecided/don't know	2	

Respondents were then read a list of specific courses that fit in the category of college prep and asked to rate each on its importance in preparing students to get good jobs:

	IMPORTANT			UNIMPORTANT			undec
	very	somewhat	Total	little	not	Total	
communications including reading and writing	79%	18%	97%	2%	-%	2%	1%
economics and business management	48	36	84	12	4	15	1
three years of English literature	66	21	87	8	4	12	1
three years of math, including such courses as algebra and geometry	40	34	74	16	9	25	1
two years of science, including such courses as chemistry and biology	49	30	79	12	9	21	--
social studies including geography and history	41	39	80	15	4	19	1
two years of foreign languages	37	28	65	16	17	33	2

Extent of conversations about career/education skills/goals/interests

All respondents were asked how much their "parents, family, school counselors, teachers or someone else" has talked to them about their "likes, dislikes, talents, abilities, strengths, weaknesses, hobbies and interests as a way of determining your goals for continuing your education or employability skills":

a lot	54%	79% Total A
some	25	LOT/SOME
only a little	15	20% Total
not at all	5	LITTLE/NOT
undecided/don't know	1	

Assessment of high school assistance

When asked how their high-school staff has helped students with career planning, respondents answered:

a great deal	31%	63% Total
a fair amount	32	GREAT DEAL/FAIR AMOUNT
somewhat	16	
not very much	11	17% Total
not at all	6	NOT MUCH/NOT AT ALL
undecided/don't know	3	
refused	1	

Respondents were then asked, "Can you think of anything your high school is doing to help you explore different employment opportunities, careers or jobs?":

no	20%		
career classes	14	internships, apprenticeship	3
career counselor	9	testing	3
career day	8	work experience	3
job fair	7	clubs	1
career center	6	college advisors	1
career speakers	5	college trips	1
college night	5	job shadow	1
brochures, flyers	3	résumé help	1
		ROP program	1
		undecided/don't know/refused	4

Self-assessment of employability

When asked if they consider themselves to be employable considering "the skills you can offer employers if you were to enter the job market today", respondents answered:

very employable	42	81% Total
somewhat employable	39	VERY/SOMEWHAT
only slightly employable	7	10% Total
not employable at all	3	SLIGHTLY/NOT
undecided/don't know	9	

Those who said they were either employable or not employable were asked to state the reasons they feel this way:

already employed	14%	I just do	1
hard working, dependable	14	not enough skill	8
many skills	13	not much experience	5
good grades	6	need to finish school	3
quick learner	6	not ready to work	3
I'm responsible	3	need college	2
past work experience	3	just decent grades	1
work well with others	3	low level jobs	1
computer skill	2	not motivated	1
many interests	2	young	1
		undecided/don't know/refused	7

Specific career/job paths:**-- reported conversations with parents**

A list of several career areas or job pathways was read to all respondents, who were asked to state whether they recall discussing each area with one or both of their parents:

	<u>Discussed</u>	<u>Not</u>	<u>undec</u>
Professional and public service careers, such as child and family care, law enforcement, economics, political and social systems, government, the military, education, law and legal studies, and social services	59%	40%	1%
Health care careers, such as medicine, dentistry, and nursing pharmacy, sports medicine, veterinary, medical records, pharmaceuticals, and medical devices	56	44	--
Arts and communications careers, such as advertising, architecture, creative writing, fine arts, journalism, graphic design, foreign languages, performing arts and public relations	48	51	1
Business and hospitality careers, such as accounting, finance, tourism, marketing, sales, information systems, business, ownership, administrative support and business management	44	55	1
Manufacturing, technology and engineering careers, such as automotive technology, construction trades, drafting and design, electrical occupations, machine tool, mechanic and repair, plastics mold, tool and die, and welding	40	59	1
Physical science careers, such as chemistry, biotechnology, microbiology, materials science, physics and chemical processing	29	70	1
Natural sciences and resources careers, such as agriculture, earth science, engineering, environmental, fisheries, forestry, geophysics, horticulture, and wildlife management	27	71	2

-- encouragement from parents

As regards the same list of job areas, respondents were asked if one or both of their parents has been encouraging the respondent to consider each job or career area:

	ENCOURAGING			UNENCOURAGING			undec
	very	some	Total	little	not	Total	
what							
Professional and public service careers, such as child and family care, law enforcement, economics, political and social systems, government, the military, education, law and legal studies, and social services	35%	21%	56%	12%	26%	38%	6%
Health care careers, such as medicine, dentistry, nursing, pharmacy, sports medicine, veterinary, medical records, pharmaceuticals and medical devices	40	15	55	12	28	40	5
Arts and communications careers, such as advertising, architecture, creative writing, fine arts, journalism, graphic design, foreign languages, performing arts and public relations	27	16	43	13	38	51	6
Business and hospitality careers, such as accounting, finance, tourism, marketing, sales, information systems, business, ownership, administrative support and business management	22	17	39	17	37	54	7
Manufacturing, technology and engineering careers, such as automotive technology, construction trades, drafting and design, electrical occupations, machine tool, mechanic and repair, plastics mold, tool and die, and welding	21	15	36	10	47	57	7
Physical science careers, such as chemistry, biotechnology, microbiology, materials science, physics and chemical processing	21	12	33	10	48	58	9
Natural sciences and resources careers, such as agriculture, earth science, engineering, environmental, fisheries, forestry, geophysics, horticulture, and wildlife management	14	12	26	12	53	65	9

High school job/career preparation programs

All respondents were asked if their high school has a program that “provided you with any information or instruction on how to look for and get a job; such as teaching you what to expect in a job interview, how to write a résumé, or how to conduct a job search?”:

yes, provided a program, information or instructions	73
no, did not provide a program, information or instructions	23
undecided/don't know	4

They were then asked to rate the information and instruction they have received from their school about employment opportunities:

excellent	21%	70% Total
pretty good	49	POSITIVE
only fair	14	21% Total
poor	7	NEGATIVE
undecided/don't know	9	

When asked how satisfied they are with the job their high school has done preparing them for the world of work, respondents answered:

very satisfied	32%	74% Total
somewhat satisfied	42	SATISIFIED
somewhat dissatisfied	7	12% Total
very dissatisfied	5	DISSATISFIED
undecided/don't know	14	

Those who said either "satisfied" or "dissatisfied" were asked to state the reason they feel that way:

<u>Reasons why "satisfied"</u>		<u>Reasons why "dissatisfied"</u>	
good education	13%	no help at all	27%
very helpful	12	could have done more	18
teachers care	9	lack of information	17
teach job skills	8	not enough practical learning	12
lots of information	7	I'm not prepared	8
they prepare you	7	no encouragement from teachers	7
career planning, counselors	6	just push you toward 4-year college	4
many opportunities	6	not challenging enough	4
résumé help	6	no follow through	2
mock interviews	5	need more computer skills	1
they could do more	3		
career day	2		
give much support	2		
job fairs	2		
I feel confident	1		
know how to do a job search	1		
need to finish high school	1		
teach responsibility	1		
visits to work sites	1		
undecided/don't know/refused	5		

Anticipated college requirements for career/job purposes

All respondents were asked if, based on the kind of career or job they are interested in, they will need a college education of four-years or more, a two- or three-year education or training program, "or do you think that education past high school is not really necessary for the career or job you want?":

a four-year/more college or university	73%
a two- or three-year education or training program	19
no post-high school education	4
undecided/don't know	4

Salary, quality of life expectations

Respondents were asked to identify the levels of wages they expect to earn in their first job:

\$5 per hour or about \$10,000 per year	5%
\$7.50 per hour or about \$15,000 per year	12
\$10 per hour or about \$20,000 per year	17
\$15 per hour or about \$30,000 per year	13
\$20 per hour or about \$40,000 per year	13
\$25 per hour or about \$50,000 per year	10
\$30 per hour or about \$60,000 per year	9
more than \$30 per hour or about \$60,000 per year	10
undecided/don't know	11

After being told, "Quality of life can be measured by the amount of free time and extra money people have to do the things they enjoy doing," respondents were asked which of a series of descriptions best describes the quality of life they expect based on the type of career or job they plan to pursue:

have plenty of extra money and free time to enjoy it	35%
have plenty of money, but work hard to earn it, with less free time	27
have lots of free time by working fewer hours, but only have some extra money	5
have adequate money and free time to do some of the things you enjoy or have just enough free time and money to get by	28
undecided/don't know	3

Influence of familial employment of career/job plans

When asked how much the careers or occupations of their parents or other family members has influenced their choice about what kind of career or job to pursue, respondents answered:

a lot	38%	64% Total
some	26	A LOT/SOME
only a little	15	35% Total
not at all	20	LITTLE/NOT
undecided/don't know	1	

Assessing influence of societal opinion/employer requirements of career/job plans

All respondents were asked which is the more important influence on the kind of careers or jobs students pursue — “the influence of society on the kind of careers or jobs that are most desirable or socially acceptable, or the influence of employers on the kind of careers or jobs that are most needed in the workplace?”:

the influence of society	36%
the influence of employers	17
both equally	37 (<i>volunteered</i>)
undecided/don't know	10

Perceived purpose of education: employment or self-fulfillment

Respondents were asked, “Do you think that you need a quality education to get a good job, or do you want a quality education for self-fulfillment?”:

needs a quality education for a good job	48%
wants a quality education for self-fulfillment	14
need a good education for both equally	35 (<i>volunteered</i>)
undecided/don't know	3

Assessment of careers/jobs with greatest opportunities

When asked to identify the top three or four career or job-related areas that have the greatest opportunities for students, respondents answered:

	<u>Areas</u>			<u>Areas</u>	
	<u>1st</u>	<u>2nd</u>		<u>1st</u>	<u>2nd</u>
computers	26%	15%		construction	1%
medical	21	24		cosmetologist	—
education	8	11		finance, accounting	1 2
business	6	6		law enforcement, firefighting	1 2
legal	4	7		marketing	1 3
engineering	3	3		music, dance	1 —
military	3	2		professional sports	1 —
chef, restaurant owner	2	1		science	1 3
architecture	1	1		electronics	— 1
automotive	1	2		ministry, social work	— 1
clerical	1	--		politics	— 1
communications	1	2		other	1 1
				undecided/don't know/refused	12 5
<i>cumulative percentages -- 1st – 4th areas</i>					
medical	45%		engineering		3%
computers	41		finance, accounting		3
education	19		law enforcement, firefighting		3
business	12		architecture		2
legal	11		clerical		1
military	5		cosmetologist		1
marketing	4		electronics		1
science	4		ministry, social work		1
automotive	3		music, dance		1
chef, restaurant owner	3		politics		1
communications	3		professional sports		1
other	2				
undecided/don't know/refused	17				

Anticipated source of job search assistance/information

Respondents were asked which of a list of sources of assistance or job information will be the first place they will utilize when they decide to go looking for a job:

<u>1st Choice</u>		<u>2nd Choice</u>	
searching the Internet	33%	seeking assistance from employment agencies	27%
reading the classified ads	22	reading the classified ads	22
by talking to friends	19	searching the Internet	21
seeking assistance from employment agencies	17	by talking to friends	18
someplace else	7	someplace else	3
undecided/don't know	2	undecided/don't know	9

Influence of peer pressure, pay and benefits, free time on job/career plans

All respondents were asked to state how important "group or peer pressure" is as an influence on their decisions about what type of careers or jobs to pursue:

very important	20%	52% Total
somewhat important	32	IMPORTANT
somewhat unimportant	18	47% Total
very unimportant	29	UNIMPORTANT
undecided/don't know	1	

When asked how important pay and benefits are as an influence in their career/job decisions, respondents answered:

very important	56%	92% Total
somewhat important	36	IMPORTANT
somewhat unimportant	5	7% Total
very unimportant	2	UNIMPORTANT
undecided/don't know	1	

Respondents were then asked, "How important do you think having enough free time for family and recreational pursuits is as an influence in your decisions about what type of careers or jobs to pursue?":

very important	60%	94% Total
somewhat important	34	IMPORTANT
somewhat unimportant	4	5% Total
very unimportant	1	UNIMPORTANT
undecided/don't know	1	

Ranking employer-provided benefits

A list of employer benefits was read, and respondents were asked to rate each from most to least important:

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>	<u>5th</u>	<u>6th</u>
health insurance	44%	29%	12%	7%	5%	3%
dental insurance	12	21	28	22	10	7
a retirement plan	29	19	13	10	16	13
family leave time	23	12	15	18	20	12
vacation time	13	13	21	18	19	16
the location of the company	18	14	13	13	14	28

Agreement with career/job statements

Several statements were read, and respondents were asked to indicate if they agree or disagree with each:

	AGREE			DISAGREE			undec
	strongly	somewhat	Total	somewhat	strongly	Total	
The best jobs and careers require at least a four-year college education Although new factories are clean, more modern, and have the latest technology, not many young people want to work in factories because most of them are still dirty and poorly lit	46%	22%	68%	21%	10%	31%	1%
	18	26	44	35	17	52	4
There are plenty of good paying high-tech jobs available that only require two or three years of job training and pay as much as \$40,000 to \$80,000 per year Even though jobs in the health care industry pay well and offer good benefits, mergers and lay-offs in the health care industry make the future of health care jobs less secure than other jobs	33	39	72	16	6	22	6
	18	22	40	20	30	50	10
There is a sense of embarrassment among many young people associated with vocational job training programs that make them less attractive than four-year college degrees Having training in the use of high-technology equipment and computers in the field they are most interested in pursuing is important today if students are going to have a chance at getting a good paying job	18	23	41	23	33	56	3
	50	39	89	7	2	9	2
Working in a job that requires only two years of vocational training is becoming more acceptable & has much of the same prestige as jobs and careers you get after completing a four-year college degree Students won't work in computer jobs because they are fearful they will be viewed negatively	24	39	63	17	16	33	4
	6	10	16	20	60	80	4
Pursuing tech careers in such areas as computers, manufacturing or health care may provide high paying jobs, but it can also limit the kind of professional careers students can seek in the future	20	25	45	25	24	49	6

Perceived purpose of career/job education

When respondents were asked if people should be educated for a specific job, or to be able to pursue careers in a variety of job areas:

a specific job	20%
a variety of job areas	72
undecided/don't know	8

Consideration of apprenticeship program

All respondents were asked if they would consider a career in manufacturing if a company hired them for an apprenticeship program, paid for their schooling and also paid them while they worked:

definitely consider it	23	72% Total CONSIDER
probably consider it	49	
probably NOT consider it	12	25% Total NOT CONSIDER
definitely NOT consider it	13	
undecided/don't know	3	

Consideration of military service

All respondents were asked if they would consider joining a branch of the military:

definitely consider it	8%	26% Total CONSIDER
probably consider it	18	
probably NOT consider it	19	70% Total NOT CONSIDER
definitely NOT consider it	51	
already joined	1	(volunteered)
undecided/don't know	3	

Those who said they "would consider" or have already joined the military were asked how much of an influence the Sept. 11 attack by terrorists on the World Trade Center and the Pentagon had on their decision to join or consider joining the military:

a very direct influence	24	43% Total DIRECT/SIGNIFICANT
a significant influence	19	
a minor influence	25	57% Total MINOR/NOT
not an influence at all	32	

Appendices

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Annual Review

**Practice and Research in Career Counseling and
Development—2000**

Darrell Anthony Luzzo and Marilyn Wright MacGregor

Practice and Research in Career Counseling and Development—2000

Darrell Anthony Luzzo
Marilyn Wright MacGregor

The authors summarize the career counseling and development literature that appeared during 2000 in refereed journals, book chapters, and full-length books.

The review of literature is divided into 5 major categories: (a) theoretical and conceptual advances, (b) career counseling and development of identified populations, (c) assessment in career counseling and development, (d) career counseling programs and interventions, and (e) resources for the professional development of career counselors and vocational psychologists.

We have always admired and appreciated the time, energy, and effort that authors of *The Career Development Quarterly* annual review have expended to provide readers with a comprehensive, yet succinct, summary of literature. After completing the task of writing this year's review, we have developed an increased awareness regarding the various challenges associated with the preparation of an article that attempts to summarize an entire year's worth of published literature in a particular field.

Our review of practice and research in career counseling and development for 2000 includes a review of relevant articles that appeared in our field's primary journals, including *The Career Development Quarterly*, *Journal of Vocational Behavior*, *Journal of Career Development*, and the *Career Planning and Adult Development Journal*, as well as in journals that are central to the practice of counseling (e.g., the *Journal of Counseling & Development*, *Journal of Counseling Psychology*, and *The Counseling Psychologist*). To ensure that our review of articles in these journals was exhaustive, we conducted hand searches (i.e., manual searches) of each issue of these journals published during 2000 rather than relying on the electronic database search systems that are typically used to obtain a list of relevant articles. Similarly, we conducted manual searches of several other journals that periodically include articles of relevance to career development practitioners and vocational psychologists. We made a particular effort to conduct searches of international journals and journals that many career counselors and vocational psychologists tend not to read on a regular basis. Finally, in an effort to locate other publications

from 2000 that have particular relevance to career counseling and development, we conducted ERIC and PsycINFO database searches using the key terms *career* and *vocational* (for the ERIC search) and the subject headings *career development* and *occupational guidance* (for the PsycINFO search).

As in previous annual reviews of literature (e.g., Arbona, 2000b; Young & Chen, 1999), we were forced to place some initial limitations on the scope of our review while simultaneously being true to our goal of providing readers with an informative, useful, integrative review of last year's publications. On the basis of these somewhat competing factors, we decided to focus our review on articles, chapters, and books that have direct relevance to the primary work in which career counselors and vocational psychologists are routinely engaged. As a result, several of the topics traditionally germane to the fields of industrial/organizational psychology, human resources, and personnel psychology are not summarized in this review. Included in the list of topics that are not covered are executive coaching, organizational change, career plateaus, sexual harassment and sex discrimination in the workplace, job stress, job burnout, job/work/career satisfaction, absenteeism, career management, organizational mentoring, workplace adjustment, career/organizational commitment, employee productivity, attitudes toward affirmative action, job performance evaluations and appraisals, and employee selection.

Although we initially planned to include publications that addressed career development programs in the workplace and the rising interest in corporate career centers, space limitations deterred us from doing so. Also because of space restrictions, we chose not to summarize literature that addressed the career development of people in specific occupational categories (e.g., school psychologists, speech-language pathologists) or topics more central to vocational education than career counseling. As a matter of professional rigor, we also made the decision *not* to include articles published in non-refered periodicals or magazines despite their potential relevance to the practice and research of career counseling and development. Also not included in this review are books—both popular press books and textbooks—that are written for the primary purpose of helping people explore general career options or obtain information about specific careers. Such resources are often included in the National Career Development Association's annual listing of current career literature published yearly in *The Career Development Quarterly*.

As in last year's annual review (Arbona, 2000b), we decided not to begin the process of gathering and evaluating relevant publications with a preconceived notion of how we would organize the literature we encountered. Instead, we allowed an organization to emerge from our review of each publication. It is our hope that the structure and content of this annual review provides readers with a useful summary of information and an overview of important resources central to the practice of career counseling and development.

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book chapters were discussions of such theories as the Minnesota theory of work adjustment (e.g., Swanson & Gore), Super's life-span, life-space theory (e.g., Swanson & Gore), sociological theories of career development (e.g., Lindh & Dahlin), and Gottfredson's theory of circumscription and compromise (e.g., Armstrong & Crombie; Swanson & Gore; Wahl & Blackhurst). However, only two theories received substantial attention in last year's career development literature: Lent, Brown, and Hackett's (1994, 1996) social cognitive career theory and Holland's (1997) person-environment congruence theory.

Social Cognitive Career Theory and the Role of Self-Efficacy in Career Decision Making

Swanson and Gore discussed the early development of and empirical evidence supporting the social cognitive career theory (SCCT; Lent et al., 1994, 1996) as a viable theory of career choice. In an empirical evaluation of the usefulness of the SCCT in predicting occupational behavior, Gore and Leuwerke (b) explored the relationships among self-efficacy beliefs, outcome expectations, person-environment congruence, and occupational considerations (i.e., occupations a student might consider pursuing) in a sample of 93 college students (58% women, 42% men). The results of their investigation revealed that self-efficacy beliefs and outcome expectations were more powerful than the more traditional variable of vocational congruence in predicting the occupational considerations of participants.

Lent, Brown, and Hackett summarized recent research and advocated for additional empirical attention to be targeted at increasing our understanding of contextual aspects of career behavior. Their review of recent literature on career barriers highlighted the renewed interest among researchers in recent years in examining career barriers as interpersonal versus environmental impediments and as generalized versus task-specific variables.

Ferry, Fouad, and Smith examined the role of family context and person input variables on the learning experiences, self-efficacy, outcome expectancies, interests, and goals of 791 undergraduate students enrolled in psychology classes at two universities. Ferry et al. found clear support for several of the tenets of the SCCT, with results indicating that both self-efficacy and outcome expectations were directly related to career interests and goals. Results also revealed significant, direct relationships between parental encouragement and learning experiences (i.e., grades in math and science) as well as between parental encouragement and outcome expectations.

Two articles focused on the theoretical and conceptual role that self-efficacy plays in career counseling and development. Bezz reviewed the basic theoretical underpinnings of self-efficacy theory and described its applications to the study of career choice and development. S. D. Brown, Lent, and Gore discussed the results of a recent investigation in which they examined whether self-rated abilities and self-efficacy beliefs were empirically distinct constructs. The results of their study revealed that occupational self-efficacy beliefs and self-rated abilities—although somewhat conceptually overlapping constructs—were empirically distinguishable and were related to occupational interests and perceived options in different ways.

Holland's Theory and Person-Environment Psychology

One of the most popular topics in the career counseling and development literature in 2000 was the evaluation of Holland's (1997) concept of vocational congruence and related concepts associated with person-environment psychology. The latest edition of the Walsh, Cralk, and Price volume, *Person-Environment Psychology: New Directions and Perspectives*, provides a strong theoretical and applied discussion of person-environment psychology and reveals the basic links between person-environment psychology and issues that are central to career counseling and vocational psychology. In a similar way, Swanson and Chu's chapter on person-environment psychology and career development explores the long-standing tradition of the person-environment fit model within career counseling contexts. Swanson and Gore's overview of Holland's theory, although more general in nature, is a reminder that "Perhaps no other aspect of Holland's theory has generated as much empirical data and controversy as has Holland's congruence hypothesis" (p. 234). In fact, it is that very controversy that formed the basis of a special issue published in 2000 of the *Journal of Vocational Behavior* titled "Person-Environment Fit: Theoretical Meaning, Conceptual Models, and Empirical Measurement."

The special issue of the *Journal of Vocational Behavior* began with a contribution by Tinsley (a) that set the stage for a constructive debate regarding what Tinsley (a) referred to as "the congruence myth." Several vocational psychologists and career development researchers (Davis; Hesketh, a; Prediger; Rounds, McKenna, Hubert, & Day; Tracey, Darcy, & Kovaski) provided responses to Tinsley's (a) original contribution. In a subsequent issue of the *Journal of Vocational Behavior*, Tinsley (b) reiterates his beliefs regarding the congruence myth by providing a rejoinder to the responses of the other contributors. In his concluding comments, Tinsley (b) encouraged career development professionals to adopt a broader conceptualization of person-environment interaction. Included in Tinsley's (b) recommendations were suggestions for career development researchers to engage in longitudinal research, to replace the dependence on congruence measures with an informed use of hit rate analysis, and to cross-validate research findings.

Later in the year, Spokane, Meir, and Catalano reviewed 66 studies—published between 1985 and 1999—that evaluated Holland's congruence hypothesis. Spokane et al. highlighted several benchmark studies that used particularly appropriate methodologies, and they summarized the usefulness of congruence as a career intervention outcome. Like Tinsley (a, b), Spokane et al. argued for a "next generation" of congruence research, with continued improvement and diversification of design and methodology.

Finally, in an empirical investigation focusing on the measurement of congruence, Meir and Tzadok reported the results of a study designed to evaluate what they referred to as the diadic measure of environmental congruence. In the diadic measure of congruence—a system of measurement that was initially conceived by Meir, Hadas, and Noyfeld (1997)—congruence values are derived by comparing the first two Holland type code letters (Realistic, Investigative, Artistic, Social, Enterprising, Conventional [RIASEC]) of each participant with the first two code letters of each of the other members of her or his environment. The congruence score for an individual is defined as the mean of his or her similarity scores. Meir and Tzadok

encouraged researchers and practitioners to consider using the diadic method of congruence as an alternative measure of person–environment fit.

The Intersection of Career and Personal Counseling

In addition to the purely theoretical discussions that appeared in the literature, several authors discussed the relevance of other important conceptual advances to career counseling and development. Several empirical studies published in 2000 addressed the overlap between career and personal/mental health counseling. Pace and Quinn reported the results of a 2-year study that included 1,690 students who sought counseling services at a midwestern state university. Results of the investigation revealed that 11% of clients who sought career counseling as their primary presenting concern also received treatment for mental health issues. Results also showed that 20% of clients who sought counseling for mental health issues received career counseling as well.

Saunders, Peterson, Sampson, and Reardon asked 215 undergraduates (26% men, 74% women) to complete assessments of career indecision, anxiety, locus of control, depression, and dysfunctional career thinking. Results revealed significant, positive relationships between depression and career indecision as well as between depression and dysfunctional career thoughts. Results also included a significant, negative correlation between depression and vocational identity. Using a slightly different approach, Spengler examined the effort that clinical and counseling psychologists devoted to clients' career concerns in the context of other treatment issues. Results showed that clinicians underemphasized career concerns but only when more severe noncareer problems coexisted. When the career concern of a client was paired with depression of equal or half the severity as the career problem, there was no tendency by clinical or counseling psychologists to underemphasize career concerns.

Niles, Anderson, and Cover found additional evidence to support the interaction of personal and career counseling. Their findings revealed that although clients' intake concerns primarily focused on career exploration issues, clients also cited the need to address education-related issues and ego dystonic emotions related to work. Furthermore, despite the focus on career concerns and goals at intake, clients' concerns during future sessions seemed to lack such a focus and, instead, tended to include several noncareer, more ego-dystonic emotional issues.

Anderson and Niles used a content analysis system to classify career counseling clients' responses to questions about the helpfulness of their recently completed counseling experiences. The results of the analysis revealed that the kinds of self-exploration and emotional support gains reported by career counseling clients were similar to the types of gains reported by clients of traditional, mainstream psychotherapy. Anderson and Niles discussed the results of their study in the context of their support of previous research suggesting a close relationship between the processes of psychotherapy and career counseling.

dimensional framework for investigating career exploration that draws on the ego-identity and human motivation literatures. They argued for a convergence of these perspectives that appropriately considers relevant sociocultural and historical contexts of career exploration.

Two empirical investigations of career exploration also appeared in the literature. Bartley and Robitschek examined the relationship between career exploration and several additional factors (including motivational processes, career decision-making self-efficacy, career decidedness, gender, ego-identity states) in a sample of 156 women and 162 men attending college. Their results indicated that the predictor variables accounted for less than one third of the variance in career exploration behavior. Such findings led Bartley and Robitschek to encourage career development professionals to engage in ongoing evaluations of the factors associated with career exploration in hopes of increasing the understanding of the career exploration process for all populations.

Werbel examined the linkages among the constructs of career exploration, job search intensity, and job search effectiveness. The participants in Werbel's study, 219 graduating college seniors (44% men, 56% women), completed measures of self- and environmental exploration and job search intensity and subsequently reported their initial compensation and level of job satisfaction. Results revealed significant relationships between environmental exploration and job search intensity and between job search intensity and initial compensation.

Dual Career Issues and the Work–Family Conflict

Several publications that appeared in 2000 focused on dual career issues and the work–family conflict. An article by Wolf-Wendel, Twombly, and Rice described policies and strategies that institutions (particularly institutions of higher education) could use to decrease the amount of stress and to increase the job and life satisfaction of dual-career couples. Burke (b) examined the relationship between sex, parental status, and spouse's work involvement on multiple measures of work–family experience. Women and men ($N = 999$) employed in similar jobs at the same organizational level in a large service firm served as participants in the study. Results revealed that women in general, and men whose spouses worked fewer hours than they themselves worked, believed that they had to sacrifice family to serve their career.

A study by Phillips-Miller, Campbell, and Morrison evaluated the relationships between work satisfaction, work-related stress, marital-family stress, and spousal support for career among 242 veterinarians (110 women and 132 men), all of whom were married and employed full-time. Women in the study reported significantly greater effect of marital-family stress on career and less perceived spousal support for career than did their male counterparts. Research reported by Hartung and Rogers examined work–family commitment and attitudes toward feminism in a cross-sectional, medical student sample (126 women, 145 men). Results revealed a relatively high level of commitment to work as well as commitment to family roles among all participants regardless of sex. Hartung and Rogers encouraged counselors to help clients to reframe multiple role commitments as an opportunity for role integration rather than considering such role demands as conflictual.

A Renewed Interest in Career Exploration Models and Research

Several researchers reported efforts to enhance the understanding of the career exploration process. After providing a definitional and historical background of career exploration, Flum and Blustein proposed a multi-

Frone's examination of the relationship between work–family conflict and several types of psychiatric disorders also revealed important findings for career counselors to consider. Survey data obtained from a representative national sample of 2,700 employed adults who were either married or the parent of a child 18 years old or younger revealed significant relationships between work-to-family and family-to-work conflicts and mood, anxiety, and substance dependence disorders. On the basis of such relationships, consistent across sex of respondent, Frone suggested that counselors discuss (at least with clients for whom it is appropriate) issues central to the multiple demands of work and family roles.

Finally, Bookman devoted an entire book to the topic of the work–family conflict and related issues, presenting a rich summary of interviews with middle-aged women woven together by an organizational structure broken down into five sections: realities, incentives, conditions, capacities, and benefits. Bookman described the changes in social perceptions and labor conditions that influenced women with choices and offered “a new perspective on how middle-aged women with choices contribute to the economy while simultaneously pursuing their personal fulfillment” (p. xiv).

Workaholism

Although the topic of workaholism might be considered more central to industrial/organizational or personnel psychology, the rising interest among career development professionals in the issue warranted its coverage in this review. B. E. Robinson provided a useful summary of research on workaholism, drawing on the literature across several disciplines, including human relations/organizational development, cross-cultural research, and family counseling. B. E. Robinson's discussion included implications for career counseling as well as an appendix summarizing 13 categories of workaholics.

In an empirical investigation, Burke (c) compared workaholism components and workaholic behaviors of managers currently divorced or currently married. Data collected from 530 women and men indicated the absence of a relationship between workaholism and divorce. A somewhat more comprehensive study conducted by Bonebright, Clay, and Ankenmann examined the differences between two types of workaholics (enthusiastic workaholics, high enjoyment in work; and nonenthusiastic workaholics, low enjoyment in work) and nonworkaholic workers (work enthusiasts, relaxed workers, unengaged workers, and disenchanted workers). Participants were 171 salaried employees at a high-tech organization in the Midwest. Nonenthusiastic workaholics reported significantly more work-life conflict and significantly less life satisfaction and purpose in life than the majority of the nonworkaholics. Furthermore, enthusiastic workaholics reported significantly *more* life satisfaction and purpose in life than nonenthusiastic workaholics. Similar to their nonenthusiastic counterparts, enthusiastic workaholics also reported significantly more work-life conflict than the majority of nonworkaholics.

Other Conceptual Advances in Career Counseling and Development

Although not bound together by any particular thematic element, three additional articles in the literature increased the understanding of conceptual topics in career counseling and development. Pittman recorded and inductively analyzed 30 career counseling interviews of college students, using a discourse analytic method. Findings indicated that clients presented three pervasive dilemmatic themes of career in their talk: uncertainty versus certainty (i.e., clients' uncertainty about their future and how they attempt to make their future known or certain), interests versus practical (i.e., clients' desire to pursue interests, on the one hand, and to make a practical choice, on the other hand), and focus versus options (i.e., clients' identification of a potential decision but then countering that potential decision [focus] with a statement expressing the desire to keep options open). Pittman encouraged career counselors to embrace career dilemmas with their clients and to focus more deliberately on their development and negotiation in the career counseling interview.

Mignot discussed the usefulness of metaphor as a paradigm for practice-based career research, arguing that career theories, both new and old, are confounded by the dualism of human agency and social structure. As a viable alternative to this limitation, Mignot suggested that metaphor provided a means of understanding the reflexive relationship between human actions and social systems.

Finally, in a study of the relationship between vocational interests and the motivation to lead (MTL), Chan, Rounds, and Drasgow used multidimensional scaling to determine whether the MTL construct is a part of the two-dimensional RIASEC model of vocational interests or is orthogonal to vocational interests. Although findings showed that the MTL construct was correlated with the Social and Enterprising interest domains, it was essentially orthogonal to Holland's hexagonal model (i.e., MTL may be considered as a general construct independent of the domain of interests).

Career Counseling and Development of Identified Populations

School-Aged Populations

Several publications addressed the career counseling and development of school-aged (K–12) populations. Five such articles focused on concerns that cut across several levels of elementary and secondary education. Walls, for example, evaluated the accuracy of 189 third-, sixth-, ninth-, and twelfth-grade students (94 boys, 95 girls) on six occupational dimensions (preparation time, availability, earnings, physical requirements, mental requirements, and status) for 20 well-known occupations (e.g., carpenter, nurse). As expected, students' accuracy in their knowledge of the occupational dimensions generally increased with grade level.

Wahl and Blackhurst reviewed literature that addressed various factors hypothesized to be associated with the occupational and educational aspirations of school-aged children and adolescents. Their review includes a summary of research indicating several well-documented findings across multiple investigations, including—but not limited to—continued sex differences in occupational aspirations, the central role of socioeconomic status in determining educational and occupational aspirations, and the importance of parental expectations and support in the educational aspirations of students of color. Fouad and Brown engaged in a similar review of literature regarding the role of social status in the development of

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children's career interests, goals, and choices. Their review, which focused on the role of race and social class in work-related behavior, provides a useful summary of empirical data on the topic, emphasizing the need to address issues of social class and diversity when working with all client populations.

In an effort to identify useful models for career counseling in the schools, Hayslip and VanZandt described several national standards and models of excellence for integrating career counseling into the curriculum. They also emphasized the importance of program evaluation and the accountability of career counseling programs to school and community. Similarly, Arbona (a) discussed the development of academic achievement in school-aged children and its role as a precursor to career development. Her review of selected theories and empirical investigations focused on sociocognitive theories of achievement motivation that include descriptions of the roles played by thoughts, emotions, and perceptions of self in students' academic performance and school adjustment.

Finally, Armstrong and Crombie examined compromises in occupational aspirations among 502 adolescents (245 boys, 257 girls). The primary objective of the study was to determine if adolescents who showed aspiration-expectation discrepancies would make anticipatory compromises over time. As expected, results indicated that adolescents with such discrepancies did, in fact, make significant changes to their occupational aspirations over time by shifting toward more realistic and accessible occupations.

Elementary and Middle School Populations

Four publications focused exclusively on the career development of elementary school populations, and two publications focused on the career development of middle school/junior high school students. Magnuson and Starr argued for the importance of the elementary school years as a time to begin life career planning. They encouraged counselors to provide multiple opportunities for children to develop the subskills requisite for effective life career planning. Beale and Williams discussed methods for developing a schoolwide career day for elementary school students, including the process of establishing a committee, developing career day goals, preparing a timeline for accomplishing specific tasks, selecting and inviting prospective speakers, and publicizing the event. Beale and Williams also described three career day formats that could be modified as necessary to meet the particular needs of students. In a separate article, Beale described the value of a well-conceived trip to a hospital as a particularly effective career awareness strategy. The article offers numerous practical strategies for preparing for the hospital visit, organizing the hospital tour, and following up at school with discussions about the visit to maximize the educational and career exploration value of the trip.

In an empirical study of elementary school students' career development, McMahon, Gillies, and Carroll examined children's perceptions of the relationship between school and occupations. Data were collected from 55 elementary school students (33 boys and 22 girls) before and after they participated in 10 weekly career education classes conducted by their classroom teachers. Findings clearly showed that participants were able to link school-based learning with jobs that they were interested in pursuing. Similar to the conclusions of others (e.g., Wahl &

Blackhurst; Hayslip & VanZandt; Magnuson & Starr), McMahon et al. emphasized the importance of integrating career development programs into the curriculum.

In terms of the career development of middle school/junior high school students, Arrington discussed the importance of providing students in the middle grades with a foundation of career awareness and career exploration experiences. Specific strategies that Arrington proposed included the infusion of career-related topics into the curriculum, the availability of computer-based career planning systems, the use of career portfolios, interest inventory assessment, lessons on time management and study skills, and work-based learning activities (e.g., job shadowing, mentoring). Lapan, Adams, Turner, and Hinkelmann explored the crystallizing career interest and efficacy patterns of 111 seventh-grade students. Results of the study suggested four issues that middle school counselors should consider when incorporating discussions of career development issues into the classroom: (a) Interest and efficacy patterns of students are strongly tied to students' expectations of current employment pattern differences between women and men, (b) many middle school students expressed relatively low levels of self-confidence across many occupational categories, (c) gender differences in the crystallization of interests might be evident in the classroom, with girls tending to exhibit more uniform interest patterns than boys, and (d) some of the boys might express relatively equal interest in Realistic, Investigative, and Enterprising careers but might exhibit substantially lower levels of self-confidence in these career areas.

High School Populations

Several journal articles published in 2000 focused on the career counseling and development of high school students. Irreh discussed various career development theories and their implications for career counseling in high school settings. Kucker provided information about South Dakota's career and life planning system for high school students, a comprehensive effort that includes the participation of students, staff, parents, business/industry leaders, and the community. Casey and Shore discussed the contributions of mentors to the affective, social, and career development of gifted adolescents. Their article identified some of the special career decision-making needs and characteristics of gifted students and suggested how mentors can play a significant role in the career development process.

Four articles addressed the influence of specific factors on the career development and decision making of high school students. Paau and McWhirter presented descriptive data regarding the perceptions of 464 high school students (226 girls, 238 boys) concerning factors that might influence their current career expectations. Results revealed that adolescents perceived their career expectations to be meaningfully influenced by personal :g., interests, personality, values), background (e.g., ability, vicarious learning experiences), and environmental (e.g., parents, friends) factors. Otto also examined high school students' perceptions of influence on their career development, focusing exclusively on adolescents' perceptions of parental influence. Three hundred sixty-two juniors (56% girls, 44% boys) participated in the study. Results revealed that participants—regardless of sex or race—cited their mothers as the single most significant influence in their career development. Findings also showed that

71% of African American students and 86% of European American students reported that their ideas about what they should do with their lives were similar to their parents' ideas.

Mau and Bikos reported the results of an empirical study that examined the relative importance of school, family, personal/psychological, race, and sex variables in predicting the educational and career aspirations of adolescents. Results of the study indicated that adolescents' high school program (i.e., academic track) and type of school (i.e., public vs. private) were the two strongest predictors of both educational and occupational aspirations.

Trusty and Ng conducted a longitudinal study using data from the National Education Longitudinal Study of 1988 (NELS:88) to examine the relationship between adolescents' perceptions of their high school achievement and their choice of postsecondary major. Results indicated that perceptions of mathematics achievement had the strongest relationship with choice of major for persons from low socioeconomic backgrounds. The relationship between perceptions of English achievement was less significant overall; nevertheless, perceptions of English achievement were stronger than perceptions of mathematics achievement in predicting the choice of major among women from middle and higher socioeconomic backgrounds.

Five additional studies addressed other aspects of high school students' career development. Santos and Coimbra conducted a study of 418 twelfth graders to analyze the relationship between conflictual and emotional independence (two topics central to the psychological separation from parents) and two dimensions of career indecision: developmental and generalized. Results revealed the absence of any relationships between the two sets of variables, indicating that persons with low levels of psychological separation from their parents were found across various levels of generalized and developmental career indecision.

Singh and Ozturk, as well as D. M. Hansen and Jarvis, evaluated the role of employment experiences on high school students' career decision making. In their study of the relationship between part-time work during high school and students' patterns of taking mathematics and science courses, Singh and Ozturk used the NELS:88 database to test their hypothesis that part-time work intensity (i.e., the mean number of hours worked each week) is negatively correlated with course work completion in mathematics and science. Results revealed support for their hypothesis. After controlling for socio-economic status (SES) and previous achievement in mathematics and science courses, there was a statistically significant, negative relationship between part-time work intensity and course work completion.

The study conducted by D. M. Hansen and Jarvis evaluated the idea that adolescents working in a family-owned business, when contrasted with adolescents working in a private enterprise, would report differences on several variables commonly associated with part-time employment. Results indicated that, among the 127 participants (59 boys, 68 girls), both boys and girls working in a family business reported greater perceived parental support than boys and girls working in a private enterprise. Furthermore, findings showed that boys working in family businesses reported less substance abuse than boys working in private enterprise.

Two international investigations of high school students' career development also appeared in the literature. Okansey evaluated South African

adolescent students' perceptions of their career development needs. Results of Okansey's research revealed the importance of asking students what career decision-making needs they possess *prior to developing large-scale career education programs*. Osoro, Amundson, and Borgen investigated aspects of the career decision making of high school students in Kenya. Results of their study indicated that rural students, relative to urban students, were more likely to seek career exploration and planning assistance from parents and teachers. Findings also revealed that gender, self-concept, and career stereotypes were among the major factors that influenced the career decisions of students.

College Students

The career development of college students was the focus of several publications. Perhaps the most comprehensive of those publications was an edited volume, *Career Counseling of College Students: An Empirical Guide to Strategies That Work* (Luzzo, a). The book's 17 chapters are organized into four major sections: Theoretical Bases and Models for Career Development, Methods and Techniques, Special Populations and Issues, and Professional Issues and Future Directions. Specific topics include the application of established and emerging career theories to college student career development (Hartung & Niles; Niles & Hartung), emotional-social issues in the provision of career counseling (Schultheiss), college students' callings and careers (Colozzi & Colozzi), career assessment (Carson & Davis; Lowman & Carson), individual career counseling (Whiston), career planning workshops and courses (Halasz & Kempson), the use of computers and the Internet for career counseling (Iaccarino), and career development issues for special populations (nontraditional students, Luzzo, b; student athletes, Martinelli; students with learning disabilities, Hitchings & Retish; ethnic minority students, DeVane & Hughey; women, Fassinger & O'Brien; and lesbian and gay students, Pope, Prince, & Mitchell). Two chapters on professional issues and future direction include the discussion of Colozzi's model of systematic career guidance and Toman's identification of a career development research and practice agenda for the twenty-first century.

Several journal articles—many of which were reports of empirical studies—also addressed the career counseling and development of college students. Two studies evaluated factors associated with the career development of student athletes. Martens and Cox gathered data from varsity athletes ($n = 131$) and nonathletes ($n = 95$) at a large midwestern university. Participants completed assessments of career development (namely vocational identity, need for occupational information, and perceived career barriers), athletic identity, and commitment to sports. Results indicated statistically significant differences between athletes and nonathletes across the three career development measures, with nonathletes exhibiting higher levels of vocational identity and less of a perceived need for occupational information than the athletes. In a somewhat more comprehensive analysis, C. Brown, Glastetter-Fender, and Shelton explored the relationships between career decision-making self-efficacy, career locus of control, identity foreclosure, athletic identity, hours of sport participation, and expectations for professional sport careers among 189 collegiate student athletes (117 men, 72 women). Results suggested that ex-

tensive hours of participation in sports, the failure to explore alternative career options, and the belief that one's career outcomes were unaffected by one's actions were all associated with lower self-efficacy for career decision-making tasks among student athletes.

Duffy examined the career states (e.g., career plateau, career indecision, underemployment, unemployment) of nontraditional college students over the age of 23 and the relevance of these states to students' critical-thinking abilities and related dispositional traits. Findings revealed that career plateau (i.e., the point in a career at which the likelihood of additional hierarchical promotion is low) and career indecision were the two career states reported most frequently by participants. Furthermore, results showed that students who were identified as experiencing a career plateau exhibited critical-thinking skills that were less well developed than did the students who were identified as career undecided. On the other hand, students who were identified as experiencing a career plateau exhibited more maturity in appraising situations and making judgments relative to students in the career-undecided category.

Furr and Elling examined the influence of work on the academic and social development of 505 students enrolled in a public university. Results revealed that students who worked 30 or more hours each week were significantly less involved with campus activities than students who were not employed or who were employed fewer than 30 hours each week. The students who did not work, in contrast with the students who did, reported more frequent interactions with faculty and an increased likelihood of establishing an important relationship with faculty.

Saks and Ashforth examined the change in job search behaviors and employment outcomes of 121 recent university graduates (44% women, 56% men) who had not secured employment in their final term of college prior to graduation. Participants completed a questionnaire before graduating and again 4 months later. Over the 4-month period, job seekers increased their active job search behavior, formal job-source usage, and search intensity. In addition, participants decreased their job search anxiety over the same 4-month period. Bickle also assessed recent university graduates at two points in time to analyze possible relationships between work values and the use of intraorganizational influence strategies (i.e., strategies for exercising influence on the job). Results of his study indicated support for the idea that work values among college students functioned both as higher order goals and as individual constraints of influence behavior on the job.

In 2000, the most popular topic in the literature regarding college students included empirical studies designed to increase the awareness of the role of cultural factors in college students' career development. Trusty, Ng, and Plata, using the NELS:88 database, examined the interaction effects of gender, SES, and race/ethnicity on postsecondary educational choices (i.e., choice of major categorized by predominant Holland type). Results revealed that the relationship between race/ethnicity and educational choice was strongest for men at lower SES levels and weakest for women at high SES levels. A second study reported by Trusty and his colleagues (Trusty, Ng, & Ray), once again using the NELS:88 database, examined the longitudinal relationships between several variables and choice

of Social type college majors versus other majors. The relationships between mathematics ability and sex on choice of Social type majors were fairly consistent across racial/ethnic groups, whereas the relationships of reading scores and SES differed across racial/ethnic groups.

Mau examined the cultural relevance of career decision-making style and career decision-making self-efficacy among American ($n = 540$) and Taiwanese ($n = 1,026$) students. Results indicated statistically significant differences in career decision-making styles and career decision-making self-efficacy on the basis of participants' nationality and sex. Although the majority of students, regardless of nationality, endorsed a rational style of decision making, Taiwanese students were more likely to endorse a dependent decision-making style. Taiwanese students also exhibited lower levels of career decision-making self-efficacy than did their American counterparts.

Shih and Brown also evaluated factors associated with the career development of Taiwanese students. In particular, they explored the relationship between acculturation level and vocational identity among 112 graduate and undergraduate Taiwanese students who were attending two midwestern universities. Results indicated that Taiwanese international students who were older and had a shorter length of U.S. residency were more likely to maintain their Asian cultural identity. Students who were older and who had a lower acculturation level also exhibited higher levels of vocational identity than did younger students with a longer length of U.S. residency. The relationships between racial/ethnic identity attitudes, career maturity, and life role salience in Black and Asian American students were the focus of Carter and Constantine's investigation of 181 college students (109 women, 72 men) in the Northeast and Midwest. Results revealed significant relationships between several life role salience domains and Black racial identity attitudes but the absence of a relationship between Black racial identity attitudes and career maturity. On the other hand, findings showed a significant relationship between Asian Americans' racial identity attitudes and career maturity domains but not between racial identity attitudes and life role salience.

J. C. Hansen, Scullard, and Haviland investigated the fit of Holland's (1997) hexagonal structure of interests among 176 Native American students (103 women, 73 men) who were attending a university in the northern part of the Midwest and a university in the northern Rocky Mountain region. Participants' scores on the General Occupational Themes of the 1985 Strong Interest Inventory were used as measures of Holland's six interest types. Statistical analyses of the data supported the circular order (RIASEC) and two-dimensional nature of Holland's hexagonal model among the Native American students. Holland's hexagonal interest structure was supported more by the women's interest data than the men's interest data. Spener-Rodgers administered a culturally relevant career development needs assessment survey to 227 international students (39% women, 61% men) from a random sampling of 50 postsecondary institutions in the United States. Participants' region of origin included Asia (51%), Europe (19%), Latin America (12%), and other (18%). Results indicated that participants' vocational needs focused on obtaining work experience, overcoming interview barriers, and developing job search skills—needs that resemble those reported by American college students.

Two other studies that addressed career development issues among international student populations focused on methodological issues. Reitzel and Vondracek, using national surveys of young adults conducted in Germany in 1991 and 1996, highlighted differences between the "variable approach" and the "person approach" methodologies for understanding the complex developmental-contextual factors in career development. Tobacyk, Cyron, and Tobacyk administered a measure of psychological type to three groups of Poles, including 182 college students, to determine whether persons with similar psychological types are found in the same occupation and academic majors in Poland and the United States. As hypothesized, the psychological type distributions of the Polish managers and the marketing and management students demonstrated convergent validity with the type distributions of American managers and business students.

People With Disabilities

People with disabilities are yet another population identified in the career development literature as possessing specific types of career development needs. Gilson discussed the various strengths of and issues faced by one-stop career centers. She focused her discussion on the various ways in which people with disabilities could access one-stop career centers to receive needed support and training. Career transition planning for students with learning disabilities was the focus of two articles, one by Lukos and one by Cummings, Maddux, and Casey. Lukos described the career transition-planning program in place for college students with disabilities in New York State, whereas Cummings et al. discussed reasons that transition plans for students with learning disabilities tended to be particularly problematic.

Two empirical investigations that focused on the career development of people with disabilities also appeared in the literature. Alston and Hampton examined the perceptions of parents and teachers regarding several variables as they related to the career entry of people with disabilities into science and engineering fields. A group of 140 parents (97 women, 43 men) and 323 teachers (219 women, 104 men) completed a survey designed to assess their perceptions of the attitudinal, environmental, and educational factors that affect students' pursuit of science and mathematics careers. Results revealed that parents and teachers believed that an insufficient number of role models in science and engineering fields existed for people with disabilities. They also believed that most education professionals did not have a good understanding of the learning potential of people with disabilities. Perhaps most relevant to career counselors was the finding that both parents and teachers of people with disabilities believed that counselors typically suggested fields *other than* science and engineering to students with disabilities.

To enhance the understanding of the career development of people with severe psychiatric disabilities, Botterbusch interviewed 48 such individuals after their participation in a vocational program that offered a variety of services, including individual and group counseling, job-seeking skills, occupational information, and mentoring. Results indicated that a variety of career patterns existed among this population. The one constant across most of these career patterns was the decline in occupational skill level,

income, and hours worked over time among workers with severe psychiatric disabilities.

Lesbians, Gay Men, and Bisexual Women or Men

In addition to the previously mentioned Pope et al. chapter addressing the career development of gay and lesbian college students, one other publication emerged from our search of the literature that focused exclusively on the career development of lesbians, gay men, and bisexual women or men. The chapter, written by Croteau, Anderson, DiStefano, and Kampa-Kokesh, reviews the expanding literature base on the career decision-making needs of lesbian, gay, and bisexual (LGB) individuals and offers strategies to help practitioners ground their career counseling work in appropriate ways. One of the highlights of the chapter is a useful summary of the content and focus of journal articles addressing LGB career development published between 1980 and 1996. Croteau et al. also identified four content areas for which a particular research need exists to more fully understand the career development of this population: (a) dual-career and multiple-role issues (particularly for lesbians), (b) the degree to which involvement in LGB communities affects career lives, (c) the importance of role models during career exploration and choice, and (d) the relative lack of diversity in factors evaluated in LGB research other than sexual orientation.

Women

Several books, book chapters, and journal articles published in 2000 focused exclusively on the career counseling and development of women. In a chapter appearing in the latest edition of the *Handbook of Counseling Psychology* (S. D. Brown & Lent), Fassinger discussed the role of gender in education and work, summarizing the well-documented literature in vocational psychology that highlights the gender-related barriers to optimal educational and career development. Fassinger encouraged career development professionals working with women to engage in focused efforts to address the contextual, structural barriers that women experience as a result of societal structures (e.g., norms, ideologies, practices, policies, and institutions that serve to limit access and options for women).

Three empirically based articles addressed early influences on women's career decision making. Novi and Meinster investigated friends' influence on the achievement-related choices of 88 high school students (all young women) who were attending a private school in the mid-Atlantic region. Results showed that the participants responded more favorably to Thematic Apperception Test (TAT; Murray, 1943) stimuli depicting achievement-oriented situations and more negatively toward affiliation situations. Results also revealed that the influence of peer groups on achievement orientation was less dominant in groups with lower levels of cohesion. Madill et al. conducted a study in which 106 young women completed work values and work salience assessments in 11th grade and again 3 years later. Results indicated significant changes in participants' values and role salience, suggesting the importance of periodic assessment and evaluation of these two factors in career decision making. Shepard and Marshall's qualitative study of young women living in rural communities highlighted the need for more role models among this population and the importance of addressing conflicting values concerning work and family that these women tend to experience.

Specific subpopulations of women were the focus of several articles. Grant, Battle, and Heggy, using a multiple-case design for the study, explored influences on the choice of major and career-related decisions of seven gifted women over a 5-year period. Their results indicated that career development interventions might have facilitated the career decision-making efforts of the participants in their study and, furthermore, that deficits in career development could serve as a major barrier to the career attainment of gifted women.

C. Brown, Reedy, Fountain, Johnson, and Dichiser surveyed a sample of 71 battered women living in domestic violence shelters in the Midwest region. Results showed that unemployed battered women, contrasted with employed battered women, exhibited lower levels of career decision-making self-efficacy and endorsed a more traditional work role attitude. Findings also indicated that high self-esteem was related to greater self-efficacy for making career decisions, an internal locus of control was related to high self-esteem, and higher perceptions of career barriers were related to an external locus of control.

Railey and Peterson assessed the dysfunctional career thoughts and interest structure of 92 female inmates and probationers. Findings revealed that repeat offenders exhibited significantly less commitment anxiety, whereas first-time offenders indicated significantly less vocational coherence (i.e., proximity of high-point Holland codes among their top three aspirations). Other notable results included the finding that 44% of the participants had not completed high school, that 47% of the participants indicated Social as their dominant field of interest, and that only 13% of the participants possessed high vocational coherence.

Lucas, Skokowski, and Ancis reviewed the counseling intake and progress notes of 18 women who sought counseling services at a university counseling center and who presented with both career concerns and depression. The majority of the women in the study described their career decision-making difficulties in the context of strained relationships with their parents or significant others, or both. Furthermore, both external relationships with others and internal conditions (e.g., mental health issues, skill deficits) emerged as significant factors in the participants' career decision-making process.

Four studies addressed issues associated with job search strategies and employment-related factors among women. Mencken and Winfield investigated whether the sex of the social contact whom women use to find jobs was associated with the segregation of women into jobs in female-dominated occupations. Their analysis of data from 1,131 working women in the Midwest revealed that women were significantly less likely to secure jobs in female-dominated occupations when their social contact was a man rather than a woman. Kulik examined differences in the job search intensity and attitudes toward unemployment among four age groups of married, unemployed Israeli women. Among various age groups, younger respondents (up to age 21) spent more time seeking employment each week than did the older respondents (over age 21); older women (between the ages of 50 and 62) were least likely to reject job offers because of financial considerations.

Nash and Chrisler compared and contrasted 43 women employed in nontraditional blue-collar jobs with 27 women who were in training for

such jobs on a number of variables that are traditionally associated with job satisfaction and success. Findings revealed that women in the training group scored higher on problem-focused methods of coping and exhibited higher levels of androgyny than did women already employed in nontraditional jobs. The authors summarized the results by explaining that women who choose to enter blue-collar fields may possess personality characteristics that predispose them to cope well with work-related stressors. In an international study of career priority patterns, Burke (a) examined the career plans of managerial and professional women in Bulgaria, Canada, Norway, and Singapore. Results indicated striking similarities in the career priority patterns across all the women in this study and showed that they endorsed patterns that combined both career and family.

Lalande, Crozier, and Davey engaged in a qualitative inquiry of the role of relationships in women's career development. Using grounded theory methodology, Lalande et al. evaluated the interviews of 18 college women. As expected, participants cited relationships with friends and family members as especially important in their career development, both in terms of their influence on developing self-knowledge and on the process of selecting an occupation to pursue.

Finally, Giles and Larmour explored the role of self-efficacy as a predictor of employees' intentions to apply for promotion. Findings provided strong support for the role of self-efficacy as an important factor in work-related behaviors of women. Such results led Giles and Larmour to conclude the following:

from a practical perspective, the finding that self-efficacy plays a significant role in the prediction of intentions for women suggests that employers not only have a responsibility to provide formal career planning and training programs, but they must also continue to encourage women to take hold of their careers. (p. 2154)

Assessment in Career Counseling and Development

As in recent years (cf. Arbona, 2000b; Young & Chen, 1999), much of the published literature in career counseling and development during 2000 contributed to the understanding of the role of assessment in career decision making. These publications fell into one of two major categories: general issues (e.g., assessment in the early stages of career counseling, the role of the Internet in career assessment, sociocultural aspects of career assessment) or validation and use of specific types of career assessments (e.g., card sorts, career decision-making assessments, Kuder Occupational Interest Survey).

General Issues in Career Assessment

Assessment in the early stages of career counseling. Several articles addressed the use of assessment in the early stages of the career counseling process. Ponterotto, Rivera, and Sueyoshi introduced and provided an initial evaluation of the Career-in-Culture Interview (CiCI) a flexible, semistructured interview protocol that can be used for the career counseling intake session. Based on advances in multicultural counseling and on the social cognitive career theory (Lent et al., 1994, 1996), the CiCI seeks to

obtain information from clients regarding their family influence, cultural background, worldview, environmental factors, and perceived personal strengths. In an empirical study, Gatti and Ram asked 29 career counseling psychologists and 48 counseling graduate students (59 women and 18 men) to make judgements regarding the quality of the prescreening stage of the career decision-making process for 18 hypothetical clients. Across both groups of participants, results showed that counselors believed that a desirable outcome of the prescreening stage of career counseling was a concise and homogeneous list of promising alternatives.

Additional discussion of the role of assessment in the early stages of career counseling appeared in a series of articles found in the December issue of *The Career Development Quarterly*. A lead article presenting a cognitive-information processing approach to readiness assessment (Sampson, Peterson, Reardon, & Lenz, a) was followed by a response by Jepsen, which in turn was followed by a reaction from the original authors (Sampson, Peterson, Reardon, & Lenz, b). Sampson et al. (a) described a five-step process model for readiness assessment, provided readers with a partial listing of instruments that can be used as a component of readiness assessment, and presented a two-dimensional, cognitive information-processing model of readiness for career decision making. Jepsen's comments regarding Sampson et al.'s (a) contribution lent support to many of the issues raised in Sampson et al.'s (a) original article but added a note of caution regarding several of Sampson et al.'s propositions. In particular, Jepsen emphasized the need for additional empirical evidence to support Sampson et al.'s (a) model. In their response to Jepsen, Sampson et al. (b) reemphasized that it was important for practitioners to use a readiness assessment *before* intervening with clients to "maximize the likelihood of meeting the client's needs in a cost-effective manner" (P. 180). They also provided readers with suggestions for further research to improve the understanding of how the concepts regarding the assessment of decision-making readiness can be used to improve the delivery of career service.

The role of the Internet in career assessment. Exploring the role of the Internet in career assessment was clearly one of the most popular career counseling and development topics that appeared in the literature in 2000. Gore and Leuwerke (a) provided a technologically rich overview of modern Internet systems and discussed their potential benefits to career development professionals who chose to engage in Internet-based assessment. Prince, Chartrand, and Silver focused their discussion on the steps involved in planning and delivering a high-quality, Internet-based career assessment system, using careerhub.org as a model. Sampson and Lumsden also discussed ethical issues in the design and use of Internet-based career assessments, including such topics as the (a) reliability and validity of Internet-based career assessments, (b) readiness of users for Internet-based career assessment, (c) administration of Internet-based career assessments, (d) challenges associated with counseling over the Internet, (e) equity of access, and (f) confidentiality and privacy. Several authors addressed the role of the Internet and other technological advances in the context of the future of career assessment. Tinsley (c) discussed technological advances in computer hardware (e.g., nanocomputers and nanobots) and software (e.g., the combination of voice input software and item response theory) as well as the social changes

accompanying such developments. Reardon, Sampson, and Lenz also speculated about the role of the Internet in the future of career assessment. In particular, they discussed the manner in which the Internet would enable career shoppers (i.e., persons previewing career materials or services before committing to them) to directly participate in career assessment activities. Oliver and Whiston echoed the ideas of other authors who expected individuals to increasingly use the Internet to access career assessments in the new millennium. They also discussed the potential benefits and pitfalls associated with Internet-based career assessment and encouraged practitioners to evaluate career assessment Web sites thoroughly before using them with clients.

In the only empirical article published in 2000 addressing Internet-based career assessment, Austin and Mahlman reported the results of a study in which 119 students in Ohio completed an administrative office technology skills assessment over the Internet, whereas 61 other students completed the same assessment in pencil-and-paper form. Internal consistency reliability of the two assessments was similar as was the variability produced by both versions of the assessment. Responses to surveys indicated that students who completed the assessment using the Internet reported few problems with accessing, downloading, taking, and submitting the test.

Other future trends in career assessment. Three additional articles addressed other future trends in career assessment. Lock and Hogan discussed five major issues—in addition to technological advances—that they believed were influencing the career assessment field: (a) The focus and definition of *career* is changing, (b) the tight labor market expands the career assessment domain for savvy job seekers, (c) job seekers increasingly emphasize the quality of work life, (d) job seekers no longer think in terms of one career path or job family, and (e) many organizations are creating multiple career paths. Fouad and Zao highlighted changes in information technology, globalization, a change in the service sector, and the increasing diversity of the work force as factors that would influence the role of assessment in career counseling and development. They argued for the expansion of traditional interest inventory assessment to include evaluation of skill sets, values, relational skills, and adaptability. Betz and Borgen echoed the suggestion offered by Fouad and Zao regarding the need for expanded assessment options. They focused their discussion on the recent trend of integrating vocational interest measurement with the concepts of self-efficacy and personal styles.

Tynofevich and Leroux discussed three important competencies that counselors should possess when administering assessments to adults in the context of career and personal counseling: the completion of appropriate training in good test-use practices, awareness of the shift in education from using psychometric models to using edumetric ones, and clinical practice in an edumetric framework. As Tynofevich and Leroux explained, "Edumetrics rejects the traditional psychometric method of ranking and statistically deriving distribution to which clients are compared. Rather, it focuses on the movement and learning clients are able to achieve" (P. 53).

Issues of diversity in career assessment. A number of authors addressed the importance of integrating culturally appropriate assessment into career counseling and development. M. T. Brown urged counselors to consider the role of economic, educational, social, and political opportunities that

form socio-structural realities and perceptions—both of which can and often do influence the career decision-making processes of women and members of racial and ethnic minority groups. Blustein and Ellis proposed that the major challenge facing career assessment in the twenty-first century is the need to affirm cultural diversity. They argued for adoption of the “unificationist” perspective toward assessment and a change to assessment practices in which counselors and clients embrace local realities that exist within diverse cultural contexts.

The cultural validity and specificity of career assessment measures were the focus of an article by Leong and Hartung (b). They urged career counselors and vocational psychologists to engage in research on culture specific variables in career assessment to increase the understanding of why many Western models, and assessments based on such models, do not seem to work as well for culturally diverse clients.

Venn provided counselors with a thorough overview of issues and concerns regarding the assessment of career and vocational skills among students with disabilities. In his book *Assessing Students With Special Needs*, Venn devoted an entire chapter to the topic of career assessment of special populations. A review of relevant interest inventories, prevocational and employability skills, and work samples and their application to the career assessment of people with disabilities is included in the chapter.

Validation and Use of Specific Types of Career Assessments

Career development researchers and practitioners authored several publications in 2000 that evaluated the validity and appropriate use of several types of career assessments. Slaney and MacKinnon-Slaney discussed the use of vocational card sorts in career counseling and career exploration. They reviewed several currently available card sorts, examined the use of the card sort technique with clients, described methods of administration and interpretation of card sorts, and discussed the effects of card sort methods in career counseling. Savickas (a) described the use of career decision-making process assessments in career counseling and provided information regarding the construction, development, and validity of three assessments in particular: the Career Decision Scale (Ospow, Carney, Winer, Yanico, & Koschier, 1987), the Career Development Inventory (Super, Thompson, Lindeman, Jordaan, & Myers, 1981), and the Career Maturity Inventory (Crites, 1978).

Several publications focused on the validity and use of the Strong Interest Inventory (SII; Harmon, Hansen, Borgen, & Hammer, 1994). J. C. Hansen discussed appropriate methods of interpretation of the SII for various populations. Brophy, on the other hand, encouraged cautious interpretation of SII scores with less educated clients. He based his recommendation on the atypical norms that result from the relatively high levels of education achieved by participants in the norming groups for many of the scales.

Empirical evaluations of the SII included an analysis of the relationship between Personal Style scales of the SII and the Big Five factors of personality (Lindley & Borgen) and an evaluation of dimensional structure underlying responses to the SII (Einarsdottir & Borgen). Lindley and Borgen gathered data from a group of 740 college students (458 women, 282 men) between 1993 and 1995 and cross-validated the results with a second group of 321 students (217 women, 104 men) in 1996. Results

revealed that across groups and sex of participants, substantial and consistent relationships were observed between the personal styles and the Big Five personality dimensions. Einarsdottir and Rounds applied multidimensional scaling analysis to the responses of 648 college students (404 women, 244 men) to the 110 occupational title items in the SII. Results of their study supported a three-dimensional structure of vocational interests, with the dimensions defined as Data/Ideas, People/Things, and Sex-Type. Diamond and Zyrtowski discussed the background, development, and conceptual foundations of the Kuder Occupational Interest Survey (KOIS; Kuder & Zyrtowski, 1991) as well as methods of administering, scoring, and interpreting results. The authors also presented a summary of research results supporting the validity and reliability of the KOIS and described the concept of person or career matching implemented in the Kuder Career Planning System. An integral part of this system is the new Kuder Career Search with Person Match interest inventory (National Career Assessment Services, Inc., 2001).

Knapp-Lee presented information regarding the background, development, and conceptual foundations of the Career Occupational Preference System (COPSystem; Knapp & Knapp, 1990), which includes assessments of interests, abilities, and values. Knapp-Lee also discussed methods of interpretation, psychometric properties, and future directions for the COPSystem. An empirical investigation conducted by Lopez, Charter, Guirguis, and Schelling evaluated the interrater reliability of the Manual Speed and Dexterity subtest of the Career Ability Placement Survey (CAPS; Knapp & Knapp, 1981) among 35 vocational rehabilitation patients and 23 volunteers. Three raters, all trained in psychological assessment, independently scored participants' responses to the subtest. Despite requiring considerable qualitative judgment in its scoring, the Manual Speed and Dexterity subtest yielded very high interrater reliabilities among the three raters ($r = .98$).

Three publications focused on the validity and usefulness of the Self-Directed Search (SDS; Holland, 1994). Spokane and Catalano described the theoretical model on which the SDS is designed; presented information about the various components of the SDS; and documented evidence supporting the reliability, validity, and functional utility of the inventory. Martie evaluated the suitability of the SDS for nonreaders with learning disabilities or mild mental retardation. Results revealed that among the 337 participants in the study, the SDS was reliable, validly measured preferences, and was sensitive to preferences with respect to disability group membership. Wright, Reardon, Peterson, and Osborn evaluated the relationship among constructs in the Career Thoughts Inventory (CTI; Sampson, Peterson, Lenz, Reardon, & Saunders, 1996) and the SDS. Their results, based on data collected from 81 persons (48 women, 33 men) seeking assistance from the career center at a large southeastern university, revealed that dysfunctional thinking may be related to the career decision making of those with high Enterprising interests.

Two studies evaluated aspects of the Minnesota Satisfaction Questionnaire (MSQ; Weiss, Dawis, England, & Lofquist, 1977). Tan and Hawkins investigated the factor structure of the MSQ Short Form when it had been completed by individuals with psychiatric disabilities while they were participating in vocational rehabilitation. Results based on data from 87 respondents indicated a three-factor structure among this population,

including an intrinsic factor, an extrinsic factor, and another factor pertaining to satisfaction derived specifically from participating in vocational rehabilitation. Hirschfeld also examined the validity of the MSQ Short Form, comparing the original intrinsic and extrinsic subscales of the MSQ with revised subscales. Analyses from two samples of employed workers indicated that revising the intrinsic and extrinsic subscales of the MSQ made little difference in the results obtained.

Two articles evaluated the use of the Myers-Briggs Type Indicator (MBTI; Myers & McCaulley, 1998) in career counseling. Healy evaluated methods for integrating the interpretation of MBTI results as a means of helping clients understand their SII profiles. Participants included 370 adults (153 men, 217 women) who completed the SII and MBTI as part of their career counseling course at a West Coast university extension center. Results showed that single, categorical MBTI scores related modestly to the SII General Occupational Theme scores, as expected. Buboltz, Johnson, Nichols, Miller, and Thomas examined the relationship between MBTI scores and the Personal Style scores of the SII. Participants, consisting of 192 men and 231 women and 3 persons who did not indicate sex, completed the two inventories as part of a career development and life-planning course at a large midwestern university. Results indicated significant relationships between the Personal Style scales of the SII and the MBTI polar dimensions in various combinations.

Several articles described initial development and validation of relatively new career assessments. Gati, Osipow, Krausz, and Saka examined the validity of the Career Decision-Making Difficulties Questionnaire (Gati, Krausz, & Osipow, 1996) by gathering data from 95 individuals who were receiving career counseling (39 men, 56 women) and their counselors as well as from a comparison group of 259 young adults. Results supported earlier research (Gati et al., 1996) in revealing three major categories or factors of career decision-making difficulty: lack of readiness, lack of information, and inconsistent information. Neuman, Bolin, and Briggs reported psychometric support for a newly developed short form of the Ball Aptitude Battery (BAB; Sung & Dawis, 1981). Results from several groups of participants revealed comparable reliability and validity of the original BAB and its short-form companion.

Smith and Betz described the development and validation of a scale of Perceived Social Self-Efficacy (PSSE). Results from a study of 354 undergraduates (90 men, 264 women) showed a high degree of internal consistency reliability for the PSSE ($r = .94$) and test-retest reliability over a 3-week interval of .82. Smith and Betz also provided evidence of the PSSE's construct and discriminant validity. D. S. Carlson, Kacmar, and Williams discussed the construction and initial validation of a multidimensional measure of work-family conflict. Analyses of data collected from five samples ($N = 1,211$) supported the assessment's content adequacy, dimensionality, reliability, factor structure invariance, and construct validity.

included (a) the use of the Internet as a career intervention strategy, (b) the evaluation of school-to-work transition programs, (c) empirical evaluations of the efficacy of career interventions, and (d) other topics in career counseling programs and interventions.

The Use of the Internet as a Career Intervention Strategy

Several authors discussed the role of the Internet as a career intervention strategy. Refvem, Plante, and Osborne discussed methods of integrating the use of the Internet into school career development programs, and Studd described strategies for adapting Internet technology to meet the career development needs of diverse populations. Studd's discussion of the careerMax initiative provided a thorough description of ways to incorporate assessment and career information into the Internet delivery of career services to high school students. Reile and Harris-Bowlsbey also discussed methods for incorporating Internet-based assessment, career planning, and job search strategies into the broader context of career development and counseling.

A special issue of the *Career Planning and Adult Development Journal*, titled "Career Counseling in an Information Age," provided various perspectives on the potential role of the Internet and related technologies in the career counseling and development field. A major contribution by Pyle is followed by several reactions and responses by other leaders in the field (Ahn, Borchard; Brotz; Epperheimer; Harris-Bowlsbey; Henderson; Howland & Palmer; Krane & Hendershot; Love; Reile & Suddarth). These contributions include the presentation and discussion of several practical methods for incorporating the Internet into individual and group career-counseling interventions.

Clark, Horan, Tompkins-Bjorkman, Kovalski, and Hackett described three Internet-based career development programs, which were developed at Arizona State University and were designed to (a) change irrational career beliefs and occupational stereotypes common among young women, (b) educate parents on practices affecting the career outcomes of their children, and (c) alter attributions relevant to the academic motivation and performance of at-risk youth. Descriptions of these interventions include the evolution of their development, the theoretical basis for each program, and early indications of the effectiveness of each approach.

N. K. Robinson, Meyer, Prince, McLean, and Low discussed the advantages associated with providing college students with an organized framework that can help guide them toward accessing career information on the Internet in meaningful ways. Their description of the Career Exploration Links program (N. K. Robinson, 1999) and its usefulness with college student populations includes a description of the program's home page, the information architecture, the interest assessment path, and the information-only paths.

Web-assisted career counseling was also the focus of an article in which Kirk outlined selected issues likely to affect counselors over the next few years. In the article, Kirk responded to a series of questions that many career counselors are beginning to ask themselves: "Are clients still going to need me?" "Should I incorporate Internet use into my practice?" "What Internet services can I provide for my clients?" Also included in the article is a listing and brief description of several career exploration and

Career Counseling Programs and Interventions

Several publications in 2000 addressed the importance of ongoing development and evaluation of effective career counseling programs and interventions for diverse clientele. The topics covered in these publications

planning Web sites organized around the topics of career planning, career advice and information, job-hunting sites, and services for special populations.

The Evaluation of School-to-Work Transition Programs

Blustein, Juntunen, and Worthington provided a thorough overview of career counseling and vocational psychology research associated with the school-to-work transition. In their chapter, Blustein et al. discussed historical perspectives, assessment issues, school-to-work models, best practices, and program evaluation. They also described the contributions of various theoretical issues associated with the transition process, including person-environment fit theories, developmental theories, learning theory, social cognitive career theory, and sociological-economic and developmental-contextual theories. The chapter concludes with a discussion of the career counseling implications of the existing school-to-work literature base.

Johnson presented the results of an exploratory study in which 373 sixth and ninth grade students who were enrolled in a primarily White, middle-class, suburban school district in New York completed a survey to determine their awareness of important school-to-work transition principles (i.e., the skills, knowledge, and attitudes needed for success). Results revealed that students had a very limited understanding of how school relates to the real world and exhibited limited awareness of the skills and knowledge requisite for a successful transition from school to work.

Wentling and Waight conducted a telephone interview with 21 school-to-work partnership directors from 16 states across the United States in an effort to identify school-based school-to-work initiatives that were likely to assist and support the successful transition of minority youth into the workplace. The five most frequently cited initiatives offered by the study's participants included (in order) the design and implementation of an integrated and relevant curriculum, training of school personnel, mentoring for minority youth, career exploration and guidance for minority youth, and parent involvement.

Lent and Worthington addressed the cultural validity of career development theories in describing the school-to-work transition. Their article, in response to a set of criticisms lodged by D. Brown regarding the cultural sensitivity of career development theories when applied to school-to-work issues, highlighted the need for additional empirical data to determine whether career theories were culturally valid as a context for understanding the school-to-work transition.

Empirical Evaluations of the Efficacy of Career Interventions

Interventions designed to enhance self-efficacy and career confidence. Several studies published in 2000 evaluated the efficacy of career exploration and planning courses, workshops, and group counseling on the career self-efficacy and career confidence of participants. McWhirter, Rasheed, and Crothers investigated the influence of a 9-week career education class on the career decision-making self-efficacy, vocational skills self-efficacy, perceived educational barriers, outcome expectations, educational plans, and career expectations among a sample of 166 high school sophomores (97 women, 69 men). Participants in the course, relative to students in a control group, exhibited increases in career decision-making self-efficacy, increases in vocational skills self-efficacy, and short-term gains in outcome expectations.

Peng reported the results of research that compared two approaches to enhancing the career confidence of undecided women attending college. The 30 participants were randomly assigned to two counseling treatment groups (i.e., cognitive restructuring and career decision-making skills training) or the control group. Results indicated that the career confidence of the participants who received either one of the career interventions increased relative to the confidence levels of the participants in the control group. Results also indicated that the cognitive restructuring intervention was somewhat more effective than the career decision-making skills treatment in enhancing the career confidence of participants.

Sullivan and Mahalik evaluated the efficacy of a career group designed to increase career-related self-efficacy. The participants included 31 college women who participated in a 6-week treatment group and 30 women who participated in a control group. The intervention consisted of six 90-minute group counseling sessions based on the four sources of self-efficacy information (i.e., successful performance accomplishments, vicarious/observational learning, emotional arousal, and verbal persuasion/encouragement). Results indicated the efficacy of the treatment group (relative to the control group) in increasing participants' career decision-making self-efficacy, vocational exploration, and commitment to career choice.

Enhancing the career decision-making self-efficacy of Upward Bound students was the focus of a two-study investigation conducted by O'Brien and her colleagues (O'Brien et al.). Participants in the first study included 34 students (18 girls, 16 boys) enrolled in an Upward Bound Summer Institute, which included five 2-hour, small-group career exploration and planning sessions (of 8 or 9 students each). The researchers collected pretreatment data prior to the start of the program and post-treatment data during the final career exploration session. Analyses of the data revealed an effect size of .25 on participants' career decision-making self-efficacy. Two groups of high school students enrolled in Upward Bound Summer Institutes participated in the second study. One of the groups ($n = 22$) received the career exploration and planning treatment, whereas the other group ($n = 26$) did not. In this study, the treatment consisted of small-group sessions that lasted 50 minutes five times a week for 5 weeks. Results indicated that students who received the career intervention exhibited significantly higher levels of career decision-making self-efficacy than did the students in the control group.

Career decision-making self-efficacy was also one of the outcome variables of interest to Krieshok, Ulven, Hecox, and Wettersten. They described two studies in which veterans seeking career services in a Veteran's Affairs Medical Center served as participants. The career intervention in the first study consisted of résumé preparation in which participants worked with a counselor to identify individual strengths, past achievements, realistic possibilities, and self-potential. In the second study, vocational test feedback was also incorporated. Results from both studies demonstrated the positive effects of the career interventions on the self-knowledge and career decision-making self-efficacy of participants.

Two studies evaluated the efficacy of interventions designed to increase Realistic self-efficacy expectations and interests in college women. Betz and Schifano evaluated a 7-hour self-efficacy enhancing intervention that focused on building, repairing, and construction activities. Participants

included 54 Introductory Psychology students, 24 of whom were randomly assigned to the treatment group and 30 of whom were randomly assigned to a control group. Results indicated significant increases in participants' Realistic self-efficacy expectations in comparison with the participants in the control group. In a related investigation, Dawes, Horan, and Hackett evaluated the effects of a 7-week technology education program designed to provide master experiences and, thereby, increase the technical/scientific self-efficacy and career interests of 169 seventh- and eighth-grade students. In the Dawes et al. study, however, treatment effects were not found.

Interventions designed to enhance other aspects of career development. Jurgens investigated the relative effects of a two-phase and a four-phase computer-based career planning intervention on measures of career certainty, career indecision, and client satisfaction among undecided college students. Both treatments included a 2-hour computerized assessment on the DISCOVER program and an individualized career-counseling session. The four-phase intervention also included a 2-hour workshop and a 2-hour professional forum. Results indicated that both interventions were effective in increasing career certainty and decreasing career indecision of participants.

Oweini and Abdo reported the results of an experimental investigation of the effects of a career-counseling workshop for Lebanese secondary school students. The 116 participants participated in a workshop that included self-exploration, completion of the SDS, and the preliminary selection of a college major. A posttreatment questionnaire indicated the effectiveness of the workshop in providing students with helpful information about choosing a college major.

Jones, Sheffield, and Joyner compared the relative effects of administering and interpreting the results of the Career Key (Jones, 1993), the Self-Directed Search (Holland, 1985), and the Job-O Enhanced (Curtler, Ferry, Kauk, & Robinett, 1995) among 201 middle school students (57% girls, 43% boys). Participants rated the three assessments equally; however, students who used the Career Key compiled a substantially lengthier list of occupations of interest compared with the list generated by students who used the other two assessments.

Other Career Counseling Programs and Interventions

Several publications described career counseling programs and interventions that could be applied to various populations for a variety of purposes. Vann, Wessel, and Spisak discussed the development of a job opportunity-evaluation matrix that clients might use to evaluate a single job opportunity or to compare multiple opportunities. Gfroerer discussed New Hampshire's efforts in developing and implementing a competency-based transcript (i.e., a career portfolio) for high school students. Lyon and Kirby described the usefulness of the career-planning essay in the career development of college students. And Brewington and Nassar-McMillan discussed career intervention strategies that counselors might use when working with older adults. The interventions recommended by Brewington and Nassar-McMillan included congruency-based and developmentally based interventions, as well as interventions based on career stages, retraining, and workplace adjustment.

Resources for the Professional Development of Career Counselors and Vocational Psychologists

As we engaged in our analysis of the career counseling and development literature in 2000, we encountered a number of publications that did not seem to belong in any of the other categories used for organizing the literature. However, many of these publications seemed appropriate to include in this review because of their relevance to the professional practice of career counseling; as such, they are included in this final section of our review.

An excellent resource for career development professionals who teach career counseling classes or facilitate career groups, or both, is the National Career Development Association's publication, *Experiential Activities for Teaching Career Counseling Classes and for Facilitating Career Groups* (Pope & Minor). This book is an excellent and refreshing resource for the instructor who is searching for ways to generate interest, enthusiasm, and learning among students and clientele enrolled in career exploration and planning courses or engaged in a career counseling group. The book is divided into eight sections that can be sampled in any order, depending on classroom or group needs. The eight sections are Introduction to Career Issues, Theory Application, Assessment and Values Clarification, Occupational Information Resources, Career Counseling, Identifying and Developing Services, Diversity, and Job Search. The more than 70 suggested activities—offered by dozens of career development professionals—range from on-the-spot discussions to reflective research to role-playing exercises.

Two other publications likely to be of interest to instructors of career counseling classes include a chapter by M. Peterson on the electronic delivery of career development university courses and a chapter by Walz and Reedy that describes the International Career Development Library, a reference-based database accessible to anyone interested in obtaining information associated with career counseling and career development publications.

Career development professionals of all types will benefit from the various articles included in a special joint issue of *The Career Development Quarterly* and the *Journal of Employment Counseling* (Amundson & Niles) that focused on collaboration, partnership, policy, and practice in career development. Internationally renowned contributors to the special issue presented their perspectives on such issues as collaboration among professional organizations, governmental entities, and counselors (Herr), career development and public policy (Watts, a), the importance of international research collaboration (Stead & Harrington), international collaboration in translating career theory into practice (Sampson, Watts, Palmer, & Hughes), the linkages that exist within and across career development service providers (Plant), and methods of implementing a consultative process to assess unemployed clients' employability needs (Borger). Also included in the special issue is the description of the North American Career Development Partnership between the United States and Canada (B. L. Carlson, Goguen, Jarvis, & Lester) and a discussion of the emergence of career development facilitators as important players in the provision of career development services (Splice & Hoppin).

Several articles published in 2000 are especially relevant to counselors who provide career development services in particular environments or

who work with particular clientele. Rehabilitation counselors will benefit from the summary of career counseling suggestions provided by Hawley, McMahon, Reid, and Shaw. School counselors will benefit from the results of an empirical study conducted by Barker and Satcher in which participants (all of whom were school counselors) perceived the need to enhance the workplace skills and career development competencies of all students. School counselors will also want to read an article by Perrone, Perrone, Chan, and Thomas in which the authors examined the self-efficacy and perceived importance of several career counseling competencies among school counselors.

Career counselors working in college or university career centers will appreciate the special issue of the *Career Planning and Adult Development Journal* (Beasley & Hinkelman) titled "Reinventing Career Centers." The special issue describes the career development service models at 15 colleges and universities as well as the role of e-networking for college students. Finally, counselors who typically or periodically provide career services to mandated clients, and those who engage in career counseling with armed services personnel transitioning from the armed services to civilian life, are sure to benefit from articles by Amundson and Borgen and by Gowar, Craft, and Zimmerman, respectively.

Career development professionals who are interested in engaging in career-related research will want to read an article by Oliver and Chartrand that addresses strategies for career assessment research on the Internet. Also likely to be of interest to researchers, and of interest to professors who work with graduate students engaging in research, is an article by Bieschke, in which she provided evidence supporting the factor structure of the Research Outcome Expectations Scale (Bieschke & Bishop, 1994). Likely to be of interest to all career counselors and vocational psychologists is an article by Pope, in which he presented an historical overview of the six stages of the development of career counseling in the United States. The article is an excellent resource for novice career counselors as well as for members of the profession who have never learned about the profession's historical bases. Career counselors and vocational psychologists of all types will most definitely want to read through S. D. Brown and Krane's chapter that is in the latest edition of the *Handbook of Counseling Psychology* (S. D. Brown & Lent). Holland (as interviewed by Feller, Honaker, & Zagzebski, 2001) recently referred to the chapter, which provides a rich summary of career intervention strategies and an agenda for future research in career counseling, as "a creative book chapter . . . the best I've read about career interventions [with a] useful plan for new research" (pp. 214-215).

Two full-length books (not previously reviewed in this article) that are relevant to the practice of career development and counseling also appeared in 2000. N. Peterson and Gonzalez published *The Role of Work in People's Lives: Applied Career Counseling and Vocational Psychology*, a resource helpful to practicing career counselors as well as to those in counseling psychology and counselor education training programs. In addition to traditional topics that appear in full-length books on career counseling and development, Peterson and Gonzalez's textbook includes chapters on values, ethics, and meanings in the workplace; family and systemic influences on occupational choices; and multicultural and diversity issues.

The other full-length book published in 2000 that is applicable to the practice of career development and counseling is *The Future of Career* (Collin & Young). This edited volume includes 18 chapters, organized into three major areas: changing contexts; new perspectives; and new directions for theory, practice, and policy. Contributing authors addressed topics such as renovating the psychology of careers for the twenty-first century (Savickas, b), adapting to the changing multicultural context of career (Leong & Hartung, a), and the new career and public policy (Watts, b).

Summary and Conclusions

As we began the process of gathering and reviewing articles published in 2000 that are relevant to the practice and research of career counseling and development, we acknowledged the challenges of summarizing such a wealth of knowledge and information into an article of this length. Nevertheless, the process of sifting through articles, book chapters, and books was both an enlightening and rewarding enterprise. As we reviewed the publications cited in this article—as well as the dozens that were not included due to space limitations—three major themes emerged.

First and foremost, we were pleasantly surprised by the variety of professional journals that contained at least one article during the year that addressed issues central to the practice of career counseling and vocational psychology. Among the articles included in the final version of this review, 37 journals representing a variety of subject areas are represented! This discovery served as a stark reminder to us that the primary journals in our field (e.g., *The Career Development Quarterly*, *Journal of Career Assessment*, *Journal of Vocational Behavior*, *Journal of Career Development*) contain only a portion of the literature base in career counseling and development each year. Furthermore, we were reminded of the important contributions made by international scholars and the large number of contributions that appeared in journals published outside of the United States.

The second theme that emerged from our review of the literature was the acknowledgement among career development researchers and practitioners alike that the Internet and other technological advances have direct relevance to the practice of career counseling. Rather than lagging behind in the application of technology in our profession, career counselors and vocational psychologists have forged ahead with the examination and consideration of various ways to harness the benefits of such technology in advancing our profession.

Third, much of the research and practice literature reviewed in this article addresses issues of diversity in the broadest sense. Numerous journal articles, book chapters, and books focused on the career development and counseling needs of specific populations (e.g., women, people with disabilities, international students) that have been traditionally underrepresented in career counseling and vocational psychology literature. It is our hope that such a trend will continue in the years to come as the meaning of career across diverse populations continues to evolve, and, along with that evolution, career counselors and vocational psychologists embrace the dynamic nature of our profession.

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Perceived Influences on High School Students' Current Career Expectations

fluences on their career development. Investigating perceived influence on career expectations is important because such perceptions are likely to influence behavior. For example, a student who perceives luck to be an important influence on his or her career choice might be less likely to take career exploration and planning seriously. Research suggests that career interests are better predicted from perceived ability than from actual ability (e.g., Barak, 1981; Vroom, 1964) and that perceived barriers might be as influential as actual barriers on career behavior (Swanson & Woltke, 1997). We, therefore, anticipated that perceived sources of influence might likewise contribute to career-related behavior.

Clearer understanding of perceived influences is also helpful in designing career interventions. For example, identification of perceived influences might raise an individual's awareness that he or she is relying too heavily on peers in making career decisions; interventions for this individual could include broadening his or her career knowledge, increasing parental involvement in career planning, and teaching rational decision-making strategies. Finally, research on perceived influences could inform interventions in a broader sense. For example, if young people identify peers as a primary influence on their career choices, then career counselors and teachers might find it useful to engage peers in the career development process. Indeed, peer mediation programs and the use of peer support networks in schools have used the positive potential of peer influences to reduce conflict and increase valuable social skills (J. J. McWhirter, McWhirter, McWhirter, & McWhirter, 1998); perhaps career development interventions would benefit from a similar philosophy.

Developmental career theorists such as Super (1990); Ginzberg, (1984); Gottfredson (1981); and Vondracek, Lerner, and Schulenberg (1986) have noted the importance of the adolescent years in laying the foundation for future career and educational pursuits. Each of these theorists acknowledges adolescence as an important time in the development of interests, perceptions of abilities, and knowledge of the world of work. Role models or key figures in the immediate environment of young people are also viewed as an important influence on young people's career development (e.g., Super, 1990). The high school years are also a time when adolescents, whether actively or passively, make critical decisions that relate directly to their postsecondary plans (e.g., whether to drop out of school, how many math and science courses to take, or whether to pursue postsecondary education; Seligman, 1994). Therefore, examining high school students' career-related perceptions is of both empirical and practical importance.

Farmer's (1983, 1985, 1987, 1997) program of research on adolescent career and achievement motivation provides empirical evidence of many factors that are associated with adolescent career expectations. On the basis of the work of Bandura (1986) and others, Farmer proposed that career and achievement motivation result from the complex interaction of background, personal, and environmental variables. To determine the specific variables to be included in each of the background, personal, and environmental categories, Farmer

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The authors present descriptive data on 464 high school students' perceptions of various factors that might influence their current career expectations. Results suggest that high school adolescents are aware of a variety of internal and external influences on their current career expectations. Girls endorsed more types of influence for mothers, female friends, and female teachers than did boys.

Herr (1996) noted that individuals operate within an ecological context that includes "the combination of physical, social, political, and economic environments that persons occupy and combine to create the circumstances in which each person negotiates his or her identity, belief systems, and life course" (pp. 6-7). These contexts vary from person to person and represent interacting influences rather than static constructs. In addition to influencing the development of self-identity, the ecological context is thought to give rise to perceptions of the world of work, including beliefs about "the nature of the occupational structure, the requirements for access to jobs, and who is likely to obtain what types of work" (Herr, 1996, p. 5).

Our goal was to understand one aspect of the ecological contexts in which adolescents make career decisions. We examined high school students' perceptions of influences on their career expectations to gain insight into their perspectives of the multiple, interacting in-

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relied on her own research (e.g., Farmer, 1983, 1985) as well as that of other career researchers (e.g., Gottfredson, 1981; Sewell & Hauser, 1975; Spence & Helmreich, 1978).

In Farmer's (1987) model, background variables include "givens" such as gender, ethnicity, school location (inner city, suburban, or rural), socioeconomic status (SES), and age. Personal variables refer to psychological variables such as ability attributions, intrinsic values, and personality constructs such as competitiveness and independence. Finally, environmental variables include societal factors such as encouragement from significant others (e.g., parents, teachers) and the availability of role models. Although background, personal, and environmental variables are thought to directly influence career and achievement motivation, Farmer's model allows for indirect influences as well, and these have been supported empirically. For example, Farmer (1987) noted that the effects of gender on career motivation were often mediated by personal and environmental variables such as perceived support for combining work and family. Farmer's work provides empirical support for the importance of these background, personal, and environmental variables in adolescent career motivation (Farmer, 1985).

As evidenced in Farmer's 1985 work and that of others, the last two decades have seen an increasing awareness of the role of social cognitive processes in career development and career-related behavior. Bandura's (1986) social cognitive theory provided the foundation for the application of social learning theory to career counseling (e.g., Krumboltz, 1979, 1983) as well as Lent, Brown, and Hackett's (1994) formulation of social cognitive career theory (SCCT). Krumboltz (1979) described the critical role of self-observations and beliefs about the world of work in the making of career-related decisions. Lent et al. addressed the role of self-efficacy expectations, outcome expectations, and the perceived opportunity structure in the formulation, pursuit, and attainment of educational and career goals (Lent & Brown, 1996; Lent et al., 1994).

Thus, the exploration of perceived influences on high school students' career expectations seems important from a variety of theoretical perspectives. Using Farmer's (1987) model as a framework, we developed a list of background, personal, and environmental factors that might influence the career expectations of adolescents. Although there is empirical evidence that these factors influence variables such as adolescent career aspirations and motivation, we were interested in learning whether adolescents themselves perceived these factors to be influential. Thus, we asked participants to rank the factors in order of perceived influence on their current career expectations. In addition to selecting the variables in Farmer's model, we added several other variables, such as media influences and luck, to capture less concrete elements of the ecology of young people's lives that might be influential.

Although our primary purpose was to gather descriptive data on high school students' perceptions of the influences on their career expectations, we also tested two hypotheses. First, based on Bandura's (1986) view of the importance of role model similarity, we hypothesized

that boys and girls would perceive same-sex role models (e.g., parents, teachers, friends) as more influential on their current career expectations than different-sex role models. Second, given Farmer's (1985) findings that the influence of personal variables on career motivation was three times greater than the influence of background and environmental factors, we hypothesized that the participants would rank the influence of personal variables higher than the influence of both the background and the environmental variables. On the basis of consistent findings of gender differences in relative influences on career development variables (e.g., Farmer, 1985; Lent et al., 1994), we examined the results separately by gender.

A second purpose of this study was to explore specific ways that various role models are perceived by adolescents to influence their career development. Super (1990) believed that key figures in the lives of young people had a strong influence on multiple aspects of their career development. According to SCCT, vicarious learning experiences (e.g., modeling) influence both the development of self-efficacy expectations and the initiation of behavior (Lent et al., 1994), and role-model influences or the lack of role models are also thought to influence the development of educational and career goals (Hackett & Byars, 1996). Farmer's (1987) set of environmental variables includes the influence that various role models (mother, father, and teachers) have on adolescent career motivation. We expanded on Farmer's set of environmental influences by including male and female peers and counselors and by examining the influence of male and female teachers separately.

The final purpose of this study was to conduct a pilot test of two instruments designed for this study. We developed these measures as an initial step toward better understanding the nature of perceived influences on adolescent career expectations.

METHOD

Participants

The participants were 464 high school students from two schools in a small midwestern city. Our data are part of a larger survey of career development variables. The sample included 226 girls and 238 boys. Of the total sample, 260 were first-year and 204 were second-year secondary students. The median age of participants was 14.7 ($SD = 1.35$). The mean SES was 52 with a standard deviation of 21.3. Regarding self-reported ethnicity, the breakdown was approximately as follows: 88% White, 3% Asian, 2% African American, and 2% other. The ethnic makeup of the participants reflected that of the larger community, which was approximately 95% European American.

Instruments

Demographic form. Participants indicated their age, sex, race or ethnicity, current career expectation, and mothers' and fathers'

TABLE 1

**Mean Ranking of Influences on Current Career Expectations
by Gender**

Variable	Girls (n = 226)		Boys (n = 238)	
	M	SD	M	SD
Background Influences (range = 0-6)				
My race/ethnic background	.91	1.45	1.25	1.89
Being male (if you are male; being female (if you are female))	1.88	1.67	1.75	1.64
My ability	4.69	1.79	4.45	1.95
Personal Influences (range = 0-10)				
Things I have read in newspapers or magazines or seen on TV about specific careers	2.88	1.67	2.85	1.69
How much money my family has	1.80	1.65	2.31	1.89
Seeing people like me in specific careers	3.15	1.92	2.74	1.90
Environmental Influences (range = 0-7)				
My values	7.40	2.64	6.83	3.00
My personality	7.23	2.31	6.89	2.82
Combining work and family	4.73	2.84	4.43	3.45
Amount or type of education needed to get a job in that career	5.56	2.84	5.75	3.37
Being lucky or unlucky	2.07	2.63	2.74	3.08
My interests	8.26	2.36	7.79	2.76
My view of how important the occupation is	5.97	2.64	5.58	3.15
How much money I will make	4.57	3.23	5.88	3.11
My likes and dislikes about jobs I've had (such as babysitting, fast food restaurants, newspaper delivery)	4.40	3.00	3.98	3.15
My attitudes about whether women should work outside the home	2.20	2.71	1.52	2.71
Environmental Influences (range = 0-7)				
My mother	5.70	2.11	5.03	2.34
My father	4.68	2.56	5.32	2.39
Male teachers	2.11	2.00	2.94	2.47
Female teachers	2.97	2.25	2.58	2.26
Male friends	2.64	2.14	3.56	2.28
Female friends	3.71	2.37	2.72	2.16
Counselors at my school	1.91	2.25	1.68	2.17
Total Influence (range = 0-3)				
Background	1.87	1.03	1.85	1.03
Personal	1.28	0.61	1.31	0.65
Environmental	2.01	1.07	1.83	1.13

Note. A higher number corresponds to a stronger perceived influence. Total influence was ranked separately by participants and does not represent a mean of all rankings within that category.

occupations. SES was assessed by rating the parental occupations of each participant (as listed by the participant) using Duncan's Socioeconomic Index (SEI; Stevens & Cho, 1985). The SEI provides scores ranging from 4 to 96, which correspond to the average educational level and salary for each occupation based on 1980 census data. The higher of the two parental occupational codes provided was used to indicate SEIs. One advanced doctoral student in counseling psychology and one trained undergraduate student coded the responses separately; an interrater agreement rate of 95% across two raters was obtained for these ratings. Codes for the remaining 5% were determined by consensus between the raters after they discussed the coding discrepancies.

Perceived Influences on Current Career Expectation. The first author designed the instrument for this study. Using Farmer's (1983, 1985, 1987) model and previous literature (e.g., Cummins, 1986), factors identified as influential in the career expectations of adolescents were listed in three categories: Background, Personal, and Environmental. A team of two advanced doctoral students in counseling psychology and one faculty member active in vocational research reviewed the items for content validity, consistency with the literature, and reading level. On the basis of their review, we made several minor changes to the measure. Next, a career education teacher at one of the schools reviewed the measure for content, format, and reading level; her comments were the basis for clarifying the directions. The final version included 10 background, 6 personal, and 7 environmental factors (see Table 1). Within each group of factors, participants rank-ordered each factor for the strength of its influence on their current career expectation. They were instructed to assign a zero to factors that did not influence them at all. To simplify completion of the instrument, a rank of "1" was assigned to the strongest perceived influence. The items were subsequently recoded so that higher numbers corresponded to stronger perceived influence. The background factors included, "my race/ethnic background," and "being male if you are male/being female if you are female." Sample personal factors included "my values" and "my personality." The environmental variables included "my mother" and "male teachers."

After participants ranked each factor within the three categories, they were asked to rank order the three categories (background, personal, environmental) according to the overall set of factors with the strongest influence on their own career expectations. Thus, the total measure included 26 items, each response in the form of a rank score.

Type of Influence on Current Career Expectation. The first author also designed this instrument for the study, and it was subjected to the same review procedures described earlier. For each of the environmental variables (my mother, my father, male teachers, female teachers, male friends, female friends, and counselors), participants indicated how these people had influenced their career expectations. Response options included, "told me good things about my career choices" (positive feedback), "made me feel like I could make my

own career choices" (support autonomy), "told me bad things about a career I was thinking about" (negative feedback), "answered my questions or gave me information" (information giving), "made me feel like I could talk with them about my career choices" (open to discussion), "pressured me too much to choose a certain career" (too much pressure), "made me feel like I could make good career choices" (support decisions), and "did not influence me" (no influence). Respondents endorsed as many options as applied.

Procedure

Participants were surveyed in intact classroom groups at two high schools. Teachers administered the surveys according to standardized administration procedures, and students placed their completed surveys and signed consent forms in a large envelope that was sealed at the end of the period. Students who chose not to participate also returned their instruments to the envelope. Because unused surveys were also placed in the envelopes, we were unable to determine the number of students who chose not to participate. However, based on class size and average absentee rates, at least 95% of the students chose to complete the survey.

RESULTS

Table 1 presents the mean rankings assigned by participants to each background, personal, and environmental factor for girls and boys separately. Rankings of zero, or "no influence," were included in the calculation of means. The mean ranks reflect the average ranking assigned to that factor, with higher ranks associated with stronger influences. The range was equal to the number of factors in that category plus one (for the "zero" responses). For each set of influences, the highest and lowest ranked influences (determined by visual inspection) are described, followed by results of *t* tests for gender differences in the mean rankings for all three sets of influences. Balancing the risk of Type I error with the exploratory nature of the study, we set alpha at $p \leq .005$. The top three background influences for both girls and boys were ability, role models ("seeing people like me in specific careers"), and media ("things I have read in newspapers or magazines or seen on TV about specific careers"). Ethnicity ("my race or ethnic background"), gender ("being male [if you are male] or being female [if you are female]"), and "amount of money my family has" were the three least influential factors in the background category. Using *t* tests, significant gender differences were found for three background influences: ability, $t(440) = -2.81, p = .005$; income, $t(433) = 3.53, p = .001$; and role models, $t(438) = -2.93, p < .004$. Girls ranked ability and role models as more influential and income as less influential on their current career expectations in comparison with their male counterparts.

Regarding the personal influences, the three strongest perceived influences for both girls and boys were interests, personality, and

values. Both boys and girls ranked "being lucky or unlucky" and "my attitudes about whether women should work outside the home" lowest in this category. Girls also ranked "combining work and family" as a weak influence, and boys ranked previous work experience ("my likes and dislikes about jobs I've had") as a weak influence. There were no significant gender differences in mean rankings of the personal influences.

In the category environmental influences, the three strongest perceived influences for girls were, in order, mother, father, and female friends. Male teachers and counselors had the lowest perceived influences in this group. For the boys, the three strongest perceived influences were, in order, father, mother, and male friends. Counselors, female teachers, and female friends were perceived as least influential among the boys. *T* tests indicated that there were significant gender differences in the mean ranking for mother, $t(440) = -3.19, p = .002$; male teachers, $t(435) = 3.86, p < .001$; male friends, $t(435) = 4.30, p < .001$; and female friends, $t(435) = 4.59, p < .001$. In each case and consistent with our hypothesis, results suggest that same-sex role models were perceived to be more influential on current career expectations than role models of the other sex.

Finally, to statistically test for gender differences among the rankings of the influences, they were coded into six categories, corresponding to the six ways the three influences could be ranked. Next, a chi-square analysis was used to test for gender differences among the rankings. The resulting chi-square was not significant ($\chi^2 = 5.35, p = .37$, suggesting that boys and girls ranked the three influences similarly.

Results associated with the Type of Influence measure are presented in Table 2. The number and percentage of endorsed items for the type of influence measure are presented for girls and boys separately. A series of chi-square tests was conducted to test for significant differences between the percentage of boys versus girls endorsing each type of influence for each person (e.g., mother) or group of people (e.g., male teachers) listed. As stated previously, because this was an exploratory study, we did not use a Bonferroni procedure but set alpha at $p < .005$. As can be seen in Table 2, there were significant differences in types of influence for mothers, female teachers, and female friends. In contrast, no significant differences between boys and girls emerged for types of father influences, male teacher influences, male friend influences, or counselor influences.

For mother influence, girls were more likely than boys to report that their mothers provided them with positive feedback ($\chi^2 = 7.02, p < .001$), supported their autonomy ($\chi^2 = 6.05, p < .001$), and were open to discussion about their career decisions ($\chi^2 = 7.32, p < .001$). A similar trend emerged for female teachers and female friends. Specifically, the girls in the sample were more likely than the boys to report that they perceived their female teachers to be open to discussion about their career decisions ($\chi^2 = 15.11, p < .001$). Also for the girls, same-sex friends seemed to have positive influences. Girls were more likely than boys to report that their female friends provided them with positive feedback ($\chi^2 = 17.65, p < .001$), supported

TABLE 2

Chi-Square Results for the Type of Influence Measure for Girls and Boys Separately

TABLE 2 (Continued)
**Chi-Square Results for the Type of Influence Measure
for Girls and Boys Separately**

Variable	Girls		Boys		χ^2
	n	%	n	%	
Mother					
Positive feedback	139	62	98	41	17.02*
Support autonomy	186	82	153	64	16.05*
Negative feedback	48	21	42	18	0.68
Information giving	114	50	88	36	7.15
Open to discussion	158	70	118	49	17.32*
Too much pressure	12	5	23	10	3.49
Support decisions	169	75	143	60	9.03
No influence	32	14	49	20	3.90
Father					
Positive feedback	108	48	127	53	2.55
Support autonomy	145	64	146	61	0.02
Negative feedback	41	18	53	22	1.68
Information giving	94	42	112	47	2.34
Open to discussion	118	52	113	47	0.44
Too much pressure	13	6	25	10	3.91
Support decisions	128	57	131	55	0.00
No influence	23	10	11	5	1.00
Male teachers					
Positive feedback	56	25	81	34	5.94
Support autonomy	61	27	73	31	1.24
Negative feedback	61	27	73	31	1.24
Information giving	53	24	75	31	4.75
Open to discussion	41	18	53	22	1.68
Too much pressure	4	2	12	5	4.00
Support decisions	57	25	73	31	2.38
No influence	130	58	103	43	7.52
Female teachers					
Positive feedback	99	44	81	34	3.55
Support autonomy	107	47	82	34	6.49
Negative feedback	21	9	26	11	0.50
Information giving	93	41	76	32	3.24
Open to discussion	89	39	52	22	15.11*
Too much pressure	5	2	7	3	0.31
Support decisions	106	47	78	33	8.07
No influence	81	36	98	41	2.20
Male friends					
Positive feedback	77	34	78	33	0.00
Support autonomy	92	41	71	30	4.84
Negative feedback	22	10	35	15	3.59
Information giving	41	18	40	17	0.04
Open to discussion	83	37	60	25	6.04
Too much pressure	5	2	16	7	5.84
Support decisions	86	38	71	31	2.31
No influence	93	41	91	38	0.12
Female friends					
Positive feedback	110	49	68	29	17.65*
Support autonomy	115	51	68	29	21.77*
Negative feedback	30	13	18	8	3.60
Information giving	53	24	28	12	9.83*
Open to discussion	112	50	59	25	27.68*

(table continued on next page)

Girls		Boys		Boys	
	n	%	n	%	χ^2
Female friends					
(continued)					
Too much pressure	6		3		5
Support decisions	119	53	73	31	20.34*
No influence	64	28	106	44	15.80*
Counselors					
Positive feedback	73	33	63	26	1.66
Support autonomy	82	36	58	24	6.30
Negative feedback	21	9	20	8	0.04
Information giving	78	35	64	27	2.20
Open to discussion	69	31	51	21	3.91
Too much pressure	13	6	13	5	0.00
Support decisions	76	34	57	24	4.10
No influence	10	4	6	3	1.07

Note. Original items were written as follows: Positive feedback = "Told me good things about my career choices," Support autonomy = "Made me feel like I could make my own career choices," Negative feedback = "Told me bad things about a career I was thinking about," Information giving = "Answered my questions or gave me information," Open to discussion = "Made me feel like I could talk with them about my career choices," Too much pressure = "Pressured me too much to choose a certain career," Support decisions = "Made me feel like I could make good career choices," No influence = "Did not influence me."

* $p < .001$. df = 1.

DISCUSSION

The results of our study suggest that adolescents do perceive their career expectations to be influenced by personal, background, and environmental factors in a manner that is consistent with previous empirical findings. For example, the high rank of mother influence among the environmental variables for the girls is consistent with previous theoretical and empirical literature on the importance of mothers in their daughters' career development (e.g., Betz & Fitzgerald, 1987; Fields, 1981; Hackett & Byars, 1996; E. H. McWhirter, Hackett, & Bandalos, 1998); Richie et al., 1997). Bandura's (1986) theory suggests that role-model influence is a function of role-model similarity, with greater similarity translating to stronger influence. Lent and Brown (1996) noted that differential

reinforcement by parents, teachers, and peers can influence the formation of career interests and eventually career choices. Burns, Gerace, Mestre, and Robinson (1982) found that Hispanic and European American high school students made career decisions based on family, relative, or friend role models, and Hackett and Byars (1996) suggested the strong role these groups play with African American women. The female participants in our study seemed to be aware of the strong influences that similar role models such as their mothers, female teachers, and female friends exerted on their career expectations. It should be noted, however, that the relatively high rank for the parent of the opposite sex is also consistent with previous findings (Astin & Myint, 1971; Betz & Fitzgerald, 1987; Standley & Soule, 1974).

That counselors were ranked so low in terms of environmental influences on students' career expectations is somewhat disconcerting. It might be that the relatively lower perceived influence of counselors (and male teachers) is associated with their low numbers in most secondary school settings. Factors such as high student-to-counselor ratios and the growing number of problems that young people bring to school limit the amount of time that school counselors can spend with individual students (e.g., Keys, Bemak, & Lockhart, 1998). However, it seems important to maximize the influence of those who have the greatest access to career-related information in the students' environment. It should be noted that when participants were asked to specify the type of influence that counselors have on their career choices (see Table 2), counselors seemed to fare better. That is, very few girls and boys described counselors as having no influence.

Lent et al. (1994) and others (e.g., Brown & Lent, 1996; Hackett & Byars, 1996) have noted that factors such as ethnicity and gender play key roles in both the learning experiences to which individuals are exposed and the feedback they receive from others about careers. Hence, ethnicity and gender influence the context in which information about self-efficacy and outcome expectations, as well as perceived barriers and opportunities, are derived (Lent & Brown, 1996). It is not entirely surprising that more than half of the participants reported that their ethnicity had no influence and more than 30% reported that their gender had no influence on their career choice. Although gender and ethnic differences in perceived educational and career barriers have been found among secondary students (E. H. McWhirter, 1997), students at this level might not be consciously aware of the effects of gender and ethnicity on the degree to which they have been differentially socialized, reinforced, or discouraged from pursuing their goals. The ethnic homogeneity of the sample (88% European American) might explain the low ranking of the influence of ethnicity.

Regarding rankings of the personal variables, both boys and girls identified interests, personality, and values as highest in influence. According to SCCT, self-efficacy and outcome expectations mutually influence career interests, which in turn influence career expectations and choice behaviors (Lent et al., 1994). Values are considered to be subsumed within outcome expectations, hence having a direct influence on career interests. According to Lent et al. (1994), "interest

depends, in part, on the outcomes that are anticipated to result from participation in that activity, along with the relative value or importance of these outcomes to the individual" (p. 91). If personal-ity can be considered "predispositions" among the person inputs that influence background contextual affordances, learning experiences, and proximal contextual influences, then all three of the strongest perceived influences are incorporated in Lent et al.'s (1994) model of the factors affecting career-related choice behavior. When participants ranked the three categories according to influence, personal influences received the highest ranking for both boys and girls. These results are also consistent with Farmer's (1985) empirical findings that personal variables had a stronger influence on high school students' career motivation than did the background and environmental variables examined.

Overall, the results for the first part of our study suggest that these male and female high school students perceived similar patterns of influence on their current career expectations. For both the background and personal sets of influences, boys and girls listed the three top influences in the same order. Among the environmental variables, parents, friends, and teachers of the same sex were perceived as most influential. Gender differences in the perceived strength of the influences emerged for three background and four environmental variables, but not for any of the personal influences. The background differences seemed consistent with gender role socialization. For example, in accordance with gender-role prescriptions, males are expected to provide the primary source of income; thus, income was a more important influence for boys. The stronger perceived influence of role models for girls might arise from the relative lack of female career models.

The results for the type of influence measure provide information regarding how the participants perceived themselves to be influenced by important people in their environment. The girls in the sample consistently reported more positive influence from same-sex parents, friends, and teachers. The results for the boys were less consistent. Although the boys perceived positive influences from their fathers, they reported equal and occasionally higher percentages of positive influence from their mothers. A similar trend emerged for the influence of friends and teachers.

One possible explanation for these results is the plentiful nature of career models for boys versus girls. Although individuals benefit most from similar versus dissimilar role models (Bandura, 1986), most career models are likely to be European American men. In general, young women experience more difficulty than young men in identifying competent career models (Hackett & Byars, 1996). The influence of the "null environment" or notion that the absence of support is more detrimental to the career development of women than men (e.g., Betz, 1994) might make the support of women more salient for girls.

Limitations and Implications for Future Research

Our sample was predominantly European American, and results should not be generalized to members of ethnic minority groups.

Replication of this study with ethnic minority samples is necessary because ethnic group membership has been associated with differences in predictors of high school students' career expectations and career commitment (E. H. McWhirter et al., 1998). Although the present findings expand Farmer's work by considering peer and teacher influence by gender, further work is needed to incorporate and understand the possible influences of other groups. Specifically, siblings are a very important potential influence on the career choice process, but researchers have not examined this influence. The psychometric adequacy of the measures must be established to increase confidence in the study results, and the incorporation of open-ended responses would allow future research participants to add sources and types of perceived influence not considered a priori. It is possible that respondents would have identified additional and important influences if they had been given the opportunity to do so. Qualitative investigations that examine perceptions of how various individuals support or fail to support adolescent career development might provide additional insight into the role of perceived influences on adolescent career development.

Implications for Counselors

The high ranking of personal influences in general and of interests, values, and personality, specifically, suggests that these first- and second-year high school students had begun the process of self-exploration. They were aware that their interests, values, and personalities contributed to their current career expectations. They might not have been able, however, to describe the nature of their interests, values, and personality and were unlikely to understand how these might have corresponded with specific occupations. Opportunities for self-exploration and access to information about the world of work are critical for fostering career expectations that are realistic and likely to lead to satisfaction. Comprehensive guidance programs within schools, and the recent attention to school-to-work initiatives (Gysbers, 1997; Worthington & Juntunen, 1997) might increase the likelihood that these links will be made systematically within schools. Career guidance counselors who work with adolescents can encourage and foster the self-examination process and provide assistance in relating students' interests, values, and personalities to possible career choices.

Second, both girls and boys identified their parents as important influences on their career expectations. Moreover, both boys and girls endorsed primarily positive influences from their parents; only a small percentage of the sample reported being negatively influenced by their parents (see Table 2). Counselors can support adolescent career development by targeting interventions at the larger ecology of adolescent lives through collaborating with their families. Counselors can help parents become informed educators and sources of guidance for their children's career development, for example, by offering a parent education program that delineates the process of career development and provides suggestions for parents'

career-related interactions with their children. In addition, counselors might invite parents to become familiar with the career-related resources available to students. For example, counselors can hold periodic parent gatherings in the school's career library to familiarize parents with the resources available to their children. Kush and Cochran (1993) described an effective program for training parents to facilitate their adolescent children's career development. Home-school collaboration has long been recognized as important in the academic success of young people and can be used to enhance career development as well (Bronfenbrenner, 1979; Cummins, 1986; Herr, 1996; O'Donnell, 1987). This suggestion is even more important in light of Brown and Krane's (in press) recent conclusion that increasing environmental support and encouragement from parents, teachers, and other role models might be a critical component of interventions that are designed to help young people surmount barriers to their educational and career goals.

The findings related to peer influence are somewhat difficult to interpret, because same-sex peers were second only to parents among the people perceived to influence career expectations, yet between 28% and 44% of the participants indicated that peers had no influence on their career expectations. School-based interventions that use peers to facilitate the career awareness and information-gathering process might be of value, not because stronger peer influence is desirable but because those who view their peers as influential (still a sizable proportion of the sample) might be better served by more informed peers. For example, peer career mentors or peer career educators might be used to expand the outreach efforts of the school guidance counselor. The perceived influence of teachers on career expectations might be used as well. School counselors can help teachers become increasingly positive sources of support and information as adolescents approach the school-to-work or the school-to-school transition. Career-focused programs that incorporate or draw on the resources of those with the greatest perceived influence in the adolescent's environment might provide the maximum benefit for adolescents. In the words of Herr (1996), "Ecological approaches affirm that complex human behavior responds to environmental stimuli, social metaphors, traditions, and value structures that define the psychological and physical boundaries within which various populations function in their daily transactions" (p. 7). Understanding adolescent perceptions of the influences within their ecological context can help counselors maximize support for accomplishing the important career development tasks associated with the high school years.

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Get Tech

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At The National Association of Manufacturers, the trade association representing U.S. manufacturers from large to small, we are aware of the great demand there will be for math- and science-skilled people in fields ranging from medical research, to avionics, to the new high-tech manufacturing. The choices that kids make now will determine whether they experience, or merely observe, the advantages that technology-based jobs will offer.

Steering kids toward math and science should be a cornerstone of education and parenting over the next decade. Too often, unfair but persistent stereotypes keep impressionable youngsters from pursuing their interest in these subjects for fear of being labeled "geeks or nerds." We need to erase that negative image.

GetTech, through its gettech.org web site and collateral materials, will help prepare students (in fun ways) for tomorrow's great jobs. Every element of the GetTech campaign, from the upbeat television and radio spots, to the posters, flyers and specialty items we urge you to distribute to kids, is designed to introduce them to the many "cool" career opportunities they otherwise might overlook.

The NAM and the Center for Workforce Success, its educational and training affiliate, are proud to team with the U.S. Department of Commerce and all of our sponsors and friends to bring GetTech to the nation's students. Our most important avenue for doing so, of course, is you: parents, teachers, guidance counselors and others who greatly influence the paths of children. The GetTech effort, much like a child, needs your support to reach its greatest potential.

Check it out! www.gettech.org

Contact Information:

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Please send your comments and suggestions to info@gettech.org

Training with a Purpose
by David C. Sansone
Executive Director
Precision Metalforming Association Educational Foundation
Independence, OH

As technology in the metalforming industry becomes more sophisticated, customer expectations more demanding, and quality system requirements more exacting, shop floor employees are required to possess skills and knowledge far surpassing those of past generations. New training processes are necessary to replace old training paradigms.

Recognizing this, the Precision Metalforming Association (PMA) and several other metalworking trade associations have been working for several years to build, from the ground up, performance-based skill standards for the industry. With the need to drive training down to the local and company level, these standards have provided the basis for models which schools, companies, and other training providers can emulate to increase the skill level of employees and potential employees.

These associations, also including Association for Manufacturing Technology, National Tooling & Machining Association, Precision Machined Products Association, and Tooling & Manufacturing Association, created a consortium in 1995, the National Institute for Metalworking Skills (NIMS), as a vehicle to support the development of a skilled industry workforce.

NIMS has four basic missions. → It is responsible for developing, writing, validating, and maintaining skill standards and performing a periodic review of each standard; → It credentials the skill levels of individuals through performance and written assessments; → It certifies training programs that train to the standards and meet NIMS quality requirements; → It assists states, schools and companies in forming partnerships to deliver training based on the skill standards.

The NIMS skill standards follow two paths, one for machining and one for metalforming. Each has Level I standards covering basic skills, followed by Level II and Level III standards for more advanced skill levels. NIMS credentials are designed to document competencies in both skills and knowledge necessary to perform to a specified level. Applicants must first progress through a standards-based performance assessment, then pass a written knowledge exam.

For the metalforming industry, Level I standards consist of basic skills necessary for entry-level positions in any of the metalforming processes. Level II are typically operator skills, while Level III skills cover setup technicians. Training to Level I skills can be taught in a classroom environment, while Levels II and III require a combination of classroom and workplace on-the-job training.

The skill standards have spawned training initiatives on many levels. The PMA Educational Foundation has developed and placed in several schools and companies a

"turn-key" 65-hour curriculum to teach Metalforming Level I skills. This curriculum can be used in a school or plant setting as part of an apprenticeship, new-hire or current employee development system with structured on-the-job training. A Metal Stamping Level II curriculum is currently being pilot tested at several companies and is expected to be released very soon. A similar curriculum for Metal Stamping Level III skills will follow. Both Levels II and III are most appropriately used in a manufacturing facility because of the significant use of stamping presses in the training process, though schools with presses may also be an ideal training site for the curriculum.

As companies and schools are becoming more familiar with NIMS, use of the standards is growing. Led by Morgal Machine Tool Company, Inc. and Ohio Stamping & Machine, Inc., in Springfield, OH, which had the first employees credentialed to the NIMS metalforming skill standards, there are now 15 companies with metalforming employees either credentialed or in the process of being credentialed. Over 200 of the 3700 NIMS credentials earned by individuals have been in the metalforming skills. Companies find that skill standards allow them to assess exactly how skilled its employees are, and they provide for consistency in training. Skill standards also support continuous improvement programs and pay-for-skills systems and provide training documentation required by ISO/QS.

NIMS skill standards are also being used in partnerships between industry and education throughout the country to develop curriculum and deliver training. Several PMA local districts have developed training programs based on NIMS metalforming skill standards in cooperation with local educational institutions. In each case, the district organized an education committee of members to take the lead in developing the program. A committee's leadership is essential to successfully meeting the needs of the industry as well as the trainees. Partnerships in Springfield, OH; Minneapolis, MN; Southern California; Milwaukee; Indiana; Michigan; and Cleveland are just some of the examples.

The training materials, assessments and models are available; implementation is the path to a well-prepared workforce.

Schools and Industry – A Winning Combination

by David C. Sansone

Executive Director

Precision Metalforming Association Educational Foundation

Independence, OH

“What can I do?” is a common question asked by representatives from member companies of PMA and other metalworking trade associations when they are trying to determine how to successfully work with their local schools to improve the pool and basic skills of employees and potential employees.

Member companies have heard the litany that “All education is local,” time and again. But what does this mean? It means change and improvement will only occur on a local level with local involvement. The metalworking industry often does not know how to assist the education community; the education community often doesn’t know how to work with industry.

In reality this discussion encompasses two distinct groups. The most obvious is the high school population. The second group, young adults and incumbent workers, is sometimes overlooked, but nonetheless significant. Let’s review some ideas and examples of industry involvement with education. In a typical school-based learning environment there are three types of industry/education interaction which can make a student’s experience more meaningful. These are career awareness activities, career exploration activities, and career preparation activities.

Many schools begin formal career awareness activities in the 6th grade with **Career Talks**. These talks are short presentations by industry representatives to a class describing the industry, its work environment and career opportunities. Websites, videos, company brochures and pictures are great resources to supplement these talks. At the high school level, **Career Fairs and Career Days** are common. These are special events usually organized by the school to bring employers, parents, and students together. Career day activities are designed to help students assess their interests and abilities regarding potential careers. Career days also give students and parents the opportunity to discover potential careers and provide a source of information about these careers. Manufacturing is often under-represented at these events in favor of careers such as nursing, computer science, and hospitality. Metalworking companies should participate at every opportunity and should invite themselves if necessary! Your trade association undoubtedly has materials (like PMA’s *Student Ambassador Program*) and tips to assist you. You can also supplement these activities with **Workplace Tours**. Invite students, teachers and parents to visit your facility, observe operations and talk to your employees.

At the next level are career exploration activities. **Job Shadowing** for anywhere from one-half day to two weeks allows a student to get a feel for a typical day in the industry. A student accompanies an employee doing his or her normal work. **Job Rotation** may be even more enlightening. Students shadow several employees in different positions that require different skills and responsibilities. This gives the student an overall

understanding of the steps required to produce a product. The students are usually asked to report on their shadowing experience when they return to school; often with assistance from the people they are shadowing.

Career preparation activities tend to be more hands-on, making them appropriate for only older students. ***Internships*** allow students to work a regular job for a specified time to learn about the industry in general and specific jobs in particular. Students' workplace activities may include special projects, samples of various tasks, or a single job. In some cases, but not all, students are compensated for their work. ***Cooperative Education*** programs have been around for many years. Students alternate or coordinate their high school or postsecondary studies with a job in a field related to their academic or occupational objectives. Students and participating businesses develop written training and evaluation plans to guide the work experience. Students receive course credit for their work experiences. ***Mentoring*** seems to be gaining favor with industry. Employees who possess desired skills and knowledge and are trained as mentors instruct students, challenge them to perform well, critique their performance, and work in consultation with teachers or youth organization leaders and the employer.

Finally there are the well-known ***apprenticeships*** and ***youth apprenticeships***. These programs combine school-based and work-based instruction, approved and registered by the state or federal Bureau of Apprenticeship and Training. The employer and employee agree to a formal relationship. Under the terms of that relationship, the employee learns an occupation in a structured setting. Traditional apprenticeships are designed for individuals who have completed high school. Youth apprenticeships are designed to give high school seniors, who meet special requirements, the opportunity to get an early start in a traditional apprenticeship. These normally involve a school-based coordinator to administer the program and closely monitor the student's progress.

Trade associations have many tools to make your involvement successful. In addition to the student communication pieces mentioned above, metalworking associations have worked with the National Institute for Metalworking Skills (NIMS) to develop skill standards and credentialing assessments for many metalworking and metalforming occupations. Industry should become familiar with these standards and ask local schools to implement credentialing in their programs when appropriate. The PMA Educational Foundation worked with a training provider, Jane Addams Resource Center, and industry representatives to create a ***Metalworking Skills Assessment*** to evaluate the skills and abilities of potential new hires and entrants into training programs. Curricula are being developed for classroom as well as in-plant programs.

The key to this discussion is that industry can and must play a role in school-based programs which can yield more and higher quality employees. There are many opportunities available for involvement; companies should select those that they are comfortable with, can sustain, and which will provide the best results.

**Ferris State University
Partnership for Career Decision-Making in Technologies and Health Sciences**

FINAL REPORT AND RECOMMENDATIONS

Overview

Launched in January 2000, the Ferris State University Partnership for Career Decision-Making is a research initiative to examine how young people choose careers and career paths, what factors influence those decisions and whether it is feasible to direct students toward high-demand careers. Chaired by Ferris President William Sederburg and Michigan Lt. Governor Dick Posthumus, the Partnership consists of representatives from the health-care and technology industries, statewide business interests, higher education and state government.

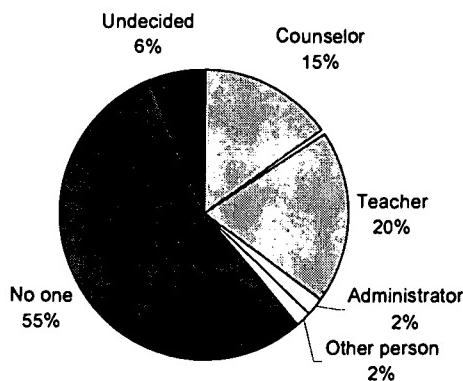
The Partnership has conducted a series of four statewide telephone surveys targeting three critical players in the career decision-making process—Michigan young people, parents and educators. The surveys assessed their perceptions with regard to specific career or education options and what factors have the greatest influence on the career decisions of young people.

Students, Parents Perceive Lack of Guidance

Michigan young people and their parents agree schools provide little guidance when it comes to choosing careers. Only 48 percent of parents identify themselves as directly involved in their children's career counseling, and more than half see no help from their children's schools.

**Educator Involvement: Most parents say
educators aren't helping with career counseling**

Is there a person at your child's school who has served as a mentor or been especially helpful in advising your child on career or job options? (n=450)



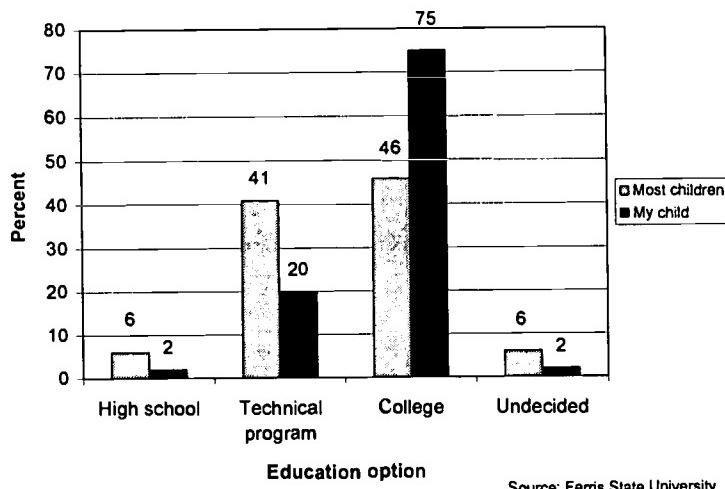
Source: Ferris State University

Forty-five percent of surveyed young people agreed, saying they could not identify anyone at their school who had helped them in choosing a career.

The survey results support several additional conclusions that further complicate the issue of career education by narrowing the field of options students are able or willing to explore:

Not My Child—Parents feel two-year degrees and training programs are beneficial for many children, but feel their children have greater potential. Three-quarters of parents think their children need four-year degrees for career success.

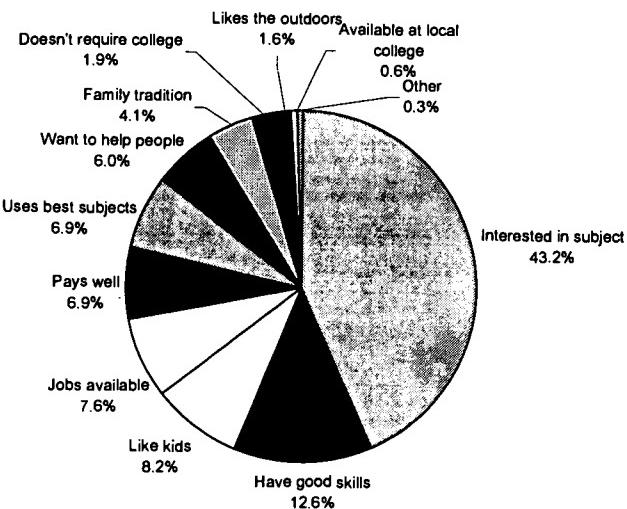
Michigan parents like education alternatives, except for their own children
Percent of parents responding that particular levels of education are necessary, "most children" versus "my child" (n=450)



Vo-Tech Stigma—Many parents and students, and most educators, feel vocational training programs carry with them a “sense of embarrassment.” Majorities in all three groups say the “best jobs” require four-year degrees.

Interest Over Opportunity—Most young people make career decisions based on their personal interests, perceived strengths and abilities, not on the availability of jobs or level of salary. For example, 32 percent of young people surveyed said computer careers hold the greatest opportunity, but only six percent (and no females) intend to pursue careers in computers.

**Interests and abilities are the
top external factors influencing career choices**
Main reasons behind Michigan student career choices (n=317)



Source: Ferris State University

Gender Gap—Young men dominate the population of students interested in more technical fields such as computers, mechanics, engineering and architecture. Young women seem to prefer occupations traditionally regarded as female, such as health care and education. In addition, females are more likely to rate the avoidance of science and math courses as important in their career decisions.

- *Inflated Self-Image*—Both parents and Michigan students themselves rate students well above average across 11 employability skills including the ability to work in teams, dependability, and written and oral communication. (Educators' assessments fell much closer to the expected average in a population with normally distributed skills.) Such high assessments may lead students to pursue unrealistic career goals, regardless of their actual abilities in a particular field.
- *Big Names*—Many adults identify the state's largest and best-known universities as its most career-oriented institutions, underscoring the bias toward four-year

degrees despite the fact that many smaller institutions and community colleges offer two- to three-year, skills-based programs tailored to specific industries or careers. University of Michigan and Michigan State University topped the lists of both educators and parents as most career-oriented.

Breaking the Barriers to Success

These conclusions present a number of challenges to educators, employers and policy leaders interested in recruiting and training young people for careers in high-demand fields such as technology or health care. According to the National Center for Education Statistics, only 52 percent of young people pursue post-secondary education at all, with only 28 percent of those earning a bachelor's degree. The needs of most students are not being met by the current system, signaling the need for a different approach—one that addresses common concerns and removes the barriers that keep students from exploring all of their career options.

Enhance the image of key careers

First, the state and employers must launch a comprehensive image campaign to promote key career fields and high-demand jobs.

- Such a campaign must speak to the interests and perceptions of young people, rather than simply pushing the number of available jobs and starting salaries.
- Business and industry, too, must acknowledge that salary and job availability alone will not convince young people to choose a career. In order to recruit young workers, employers must get beyond traditional messages about careers and motivate students through real-world job experiences and mentorship.
- The campaign also must appeal to parents, both as the primary adult influence in the career decision-making process and as an older generation of workers that may not be familiar with the variety of careers available in rapidly advancing fields such as information technology or biotechnology.
- The campaign should create conversations about career options between students, parents, employers and educators.

Accept the four-year bias

Second, higher education, employers and the state must be willing to accept the public's perception of the value of a traditional four-year degree over other educational programs and must find ways to work with that perception.

- With 20 percent of young people who head to college entering as "career undecided" and 50-60 percent changing their majors at least once, colleges must be encouraged to develop career-education programs of their own.
- Higher education and the state must work together to make it easier for students to move from a community college to a four-year institution or to transfer between universities to complete their degrees.
- Higher education must offer more opportunities for high-school seniors to earn college credit—again, making that four-year degree more easily achieved.
- Higher education must structure curricula to ease the transition for students who move between disciplines within a career area (from lab technician to medical records, for example), and to provide more job options for students who do not complete their four-year degree or who must work while going to school.

Emphasize career preparation in K-12 system

Third, educators and policy-makers must work to improve career education and counseling efforts in the K-12 school system, with less emphasis on the traditional high-school “tracks”—general education, vocational-technical or college-preparatory—and a stronger focus on career awareness and skills that apply across tracks and careers.

- Educators and legislators must place greater emphasis on essential skills and critical thinking in K-12 curriculum.
- Educators and policy-makers also must employ incentives for creative teaching and sharing of best practices to overcome the fear of math and science among students. One-third of students say avoidance of math and science courses is at least somewhat important to them in choosing a career.
- The state must train, fund and empower career counselors in the K-12 system—counselors with training in career development who are primarily responsible for counseling students on career choices.
- Educators and employers must collaborate to provide exposure to current jobs and career fields through summer institutes and camps. Both educators and students need mentors in business and industry to keep abreast of changing workforce needs.

Partner with Michigan's employers

Fourth, educators and the state must foster relationships with leaders in business and industry to facilitate career-related professional development and educational opportunities.

- Educators, counselors and students can benefit from career exposure through summer camps, industry mentors, internships and work experiences. Forty-two percent of students say they would be willing to consider a different career field if offered the opportunity to come to campus, free of charge, to explore that field. Such programs also will help students match their career interests with their actual abilities.
- Corporations benefit from positive exposure for funding targeted scholarships, donating or sharing equipment and facilities and participating in adopt-a-school programs.
- Higher education and the state's employers must work together to respond to the needs of the “college aftermarket”—workers or graduates in need of retraining or specific skills to advance in their careers.

Collaborate to benefit career development and education

Finally, the state must foster collaboration between interested companies, groups, institutions and families regarding education and career-development issues to better serve all of education's stakeholders.

- Any such collaborative effort must incorporate the leadership of the state's Workforce Development Boards and Educational Advisory Groups, K-12 and higher education and parent groups and organizations.
- The establishment of a statewide Career Institute should be considered, to serve as a center for research in career-development issues, a learning laboratory in which

new approaches to career education can be tested and a career-information resource for policy leaders, educators, parents and students.

- To encourage students to pursue training in critical, high-demand fields, the state should increase promotion of these programs and relax tax-credit requirements for companies with employees who enroll in non-degree training programs.
- Educators, corporations and the state should encourage students to pursue key careers by offering targeted scholarships—36 percent of students say a targeted scholarship might convince them to explore a career field in which they were not previously interested.
- All constituencies must work together to develop our most important resource—the knowledge worker, who combines intellectual and specific work-related skills with the ability to work in teams and the pursuit of continuous learning.

For more information on the Partnership for Career Decision-Making or for the complete results of any of these surveys, contact Jim Thorp at (231) 591-2043 or visit the Partnership Web site at www.ferris.edu/partnership/.



FERRIS STATE UNIVERSITY

The Ferris State University Career Institute for Education and Workforce Development is a center for research and information on career awareness, career education and workforce development. The Institute serves as an advocate for policy and reform regarding career education and development issues, a learning laboratory in which new approaches to career education can be tested, and a career-information resource for policy leaders, educators, parents and students.

Founded in 1884, Ferris State University has a long history of providing young people with the best in career-oriented technical and professional education. Ferris is a four-year public university with campuses in Big Rapids and Grand Rapids, Michigan, and satellite locations across the state. We offer more than 120 educational programs, including doctorate, master's, bachelor's and associate degrees. The University is organized into nine academic colleges: Allied Health Sciences, Arts and Sciences, Business, Education and Human Services, Pharmacy, the Michigan College Optometry, Kendall College of Art and Design, and the College of Professional and Technological Studies.

The AED Foundation

The AED Foundation was established in 1992 as the educational and workforce development arm of the Associated Equipment Distributors. Since its founding, AEDF has begun to fulfill its ambitious objectives, through a wide variety of new programs and products to help the construction equipment industry maintain its markets through excellence and learning.

Associated Equipment Distributors is a membership association of 1,200 independent distributors, manufacturers, and other organizations involved in the distribution of construction equipment and related products and services in North America and throughout the world. Associated Equipment Distributors serves independent distributors of construction equipment and related equipment; manufacturers of construction and related equipment/products; firms that rent construction and related equipment; suppliers of business services, including finance, insurance, data processing and others; and related industry trade associations

CENTER FOR

Workforce

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The Manufacturing Institute



The National Association of Manufacturers is the nation's largest industrial trade association. The NAM represents 14,000 members (including 10,000 small and mid-sized companies) and 350 member associations serving manufacturers and employees in every industrial sector and all 50 states. Headquartered in Washington, D.C., the NAM has 10 additional offices across the country.

The Center for Workforce Success is the workforce-development affiliate of the NAM's Manufacturing Institute. Its mission is to find and promote workforce solutions for manufacturers in a global economy, and to make manufacturing careers a preferred choice for workers and students in America.



The Precision Metalforming Association (PMA) is the full-service trade association representing the \$41 billion metalforming industry of North America—the industry that creates precision metal products using stamping, fabricating and other value-added processes. Its nearly 1,400 member companies include metal stampers, fabricators, spinners, slide formers and roll formers, as well as suppliers of equipment, materials and services to the industry. Members are located in some 30 countries, but the majority are found in North America—in 41 states of the U.S., as well as Canada and Mexico.

The PMA Educational Foundation was established in 1996 to help develop a trained, motivated workforce by initiating and supporting training, education and image-building program with PMA members companies, educators, corporations, foundations and civic leaders across the country.



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